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添付1 ワークショップ関連資料

1.1 大阪市発表資料（スマートシティ）

Osaka City's Initiatives Toward Realizing a Sustainable Society

Workshop between Rayong City and Osaka City
City to City collaboration 2025

International Cooperation,
Environmental Policy Division,
Environment Bureau
Osaka City

Nov.19, 2025

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Osaka City's Initiatives Toward Realizing a Sustainable Society

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1. distinctive initiatives in Umekita Phase 2

2

Overview of Umekita 「GRAN GREEN OSAKA」



3

Overview of Umekita 「GRAN GREEN OSAKA」

Now



September 6, 2024 prior to the opening of the town



(source : Urban Renaissance Agency)

Examples of cutting-edge services that contribute to improved visitor convenience

- (1) Platforms that contribute to the use of human data
- (2) Shared personal mobility services
- (3) Improved delivery management and facilities management in parks and buildings
- (4) Urban spaces that combine real and digital = Promoting DX to achieve "parkness"
- (5) Using train stations for community development and creating convenient healthcare environments

After



Image by GRAND GREEN OSAKA Develop

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2.The distinctive initiatives in the Midosuji Area

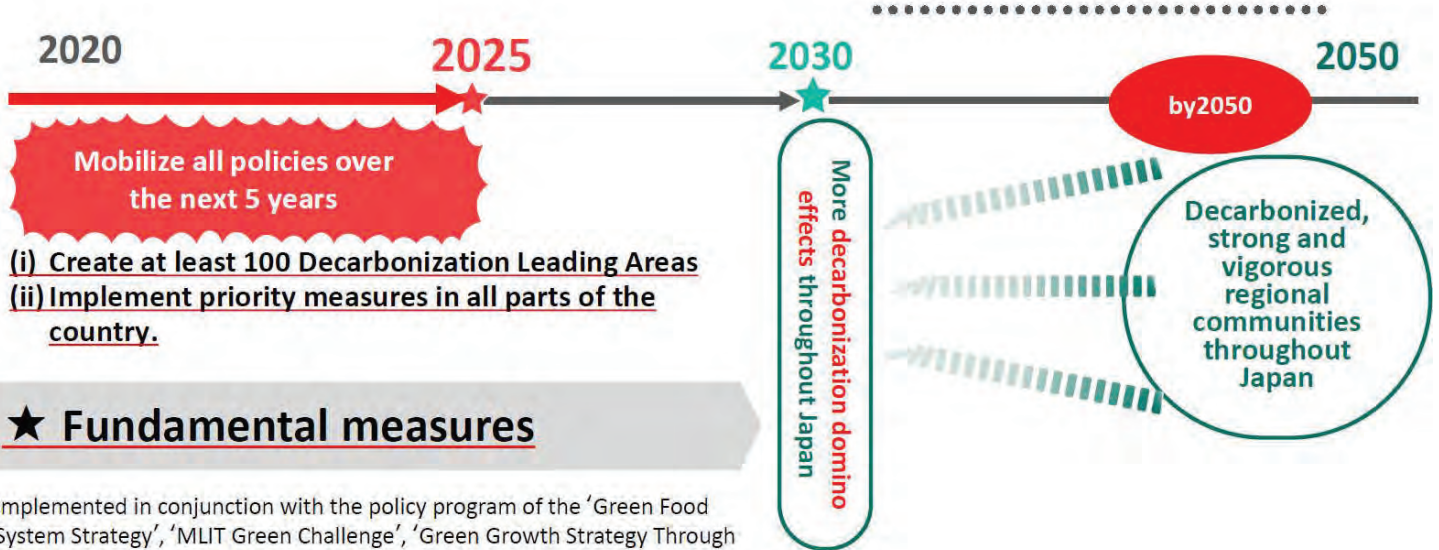
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Creation of Decarbonization Leading Areas Project

(Ministry of the Environment, Japan)

○ Based on the Regional Decarbonization Roadmap, **100 "Decarbonization Leading Areas"*** have been selected, paving the way for pioneering decarbonization efforts tailored to regional characteristics. These initiatives are to **be implemented by-fiscal year 2030**.

*Areas achieving net-zero CO2 emissions from power consumption by fiscal year 2030.



★ Fundamental measures

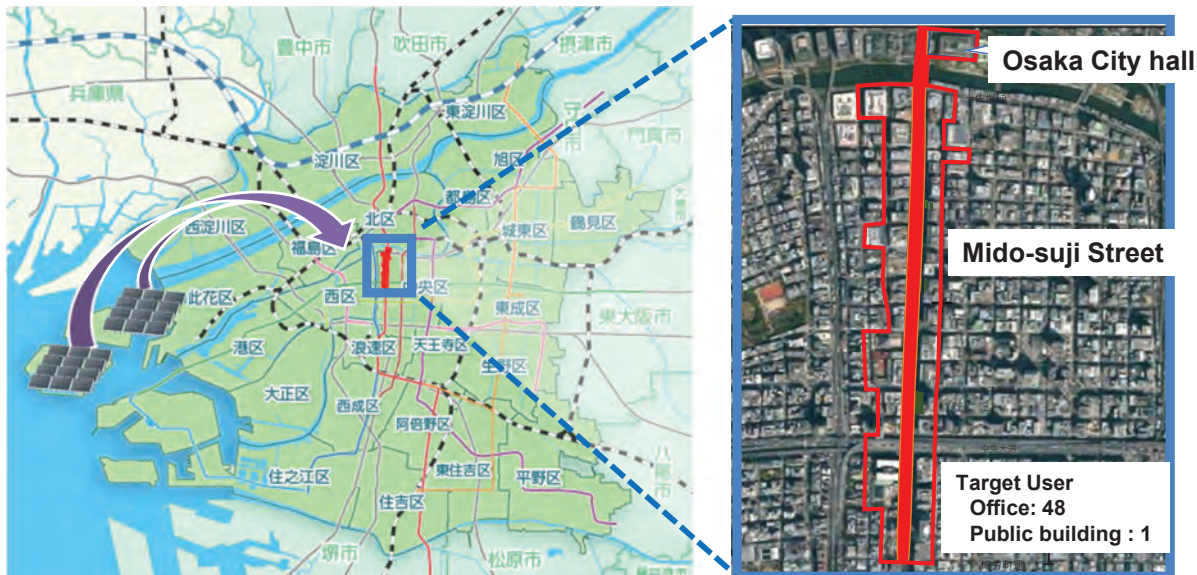
Implemented in conjunction with the policy program of the 'Green Food System Strategy', 'MLIT Green Challenge', 'Green Growth Strategy Through Achieving Carbon Neutrality in 2050', etc.

(Reference: Ministry of the Environment)

Decarbonization Leading Area (Midosuji area)

The area around Midosuji Street, the symbolic street running north-south through the center of Osaka city, is a historic business district that has contributed to the development of modern Osaka and now Osaka's most business-intensive district.

In this area, we aim to achieve net-zero CO2 emissions from electricity consumption in business sectors by FY2030. (selected as the national project in Nov.2023.)



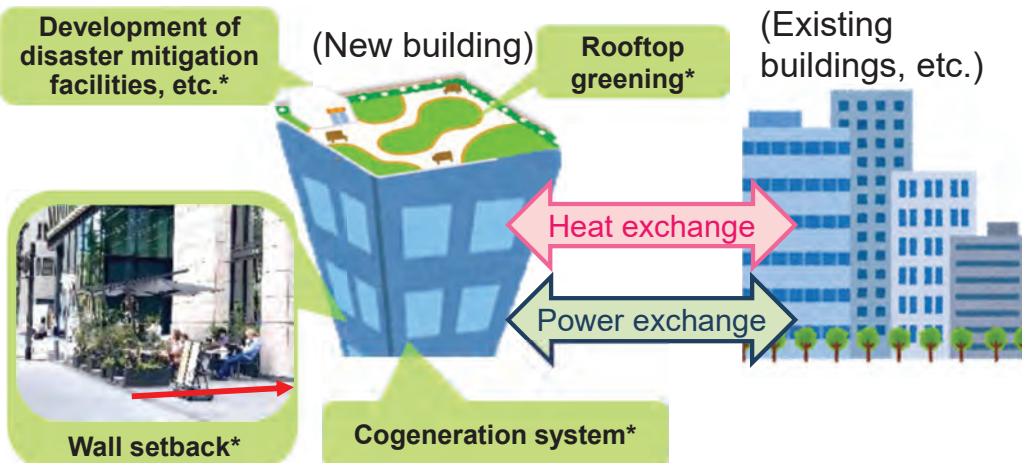
Characteristics of the Midosuji area model

— Coordination between measures

Building a safe, secure, and sustainable business area through “streetscape redevelopment × resilience × decarbonization”

- The target areas were designated as Specific Urban Reconstruction Emergency Development Areas by the Japanese government. In 2019, the Urban Regeneration Safety Assurance Plan was formulated jointly by the public and private sectors. Efforts are underway to improve the environmental performance in normal times by introducing independent/distributed power sources and an area-wide energy exchange, and to build a business continuity district (BCD).
- In this context, low-CO2 development projects (e.g., ZEB Ready) are underway at multiple facilities by using subsidy programs, etc. of the Ministry of Land, Infrastructure, Transport and Tourism. The initiative will be accelerated by using the Regional Decarbonization Transition and Renewable Energy Promotion Grant.

In line with rebuilding



Programs/systems to be used

Leading Project for Sustainable Buildings, etc.:

Supporting energy conservation projects for houses/buildings

Private Urban Renewal Project: Offering mezzanine support and tax incentives

Urban Renewal Special District: Exempting from regulations on the floor area ratio, etc. and enabling formulation of flexible plans

* Relaxation of the floor area ratio in accordance with the Implementation Standard for the Floor Area Certification and Handling Guidelines regarding the district planning for the north district of Midosuji-honmachi, Osaka City 8

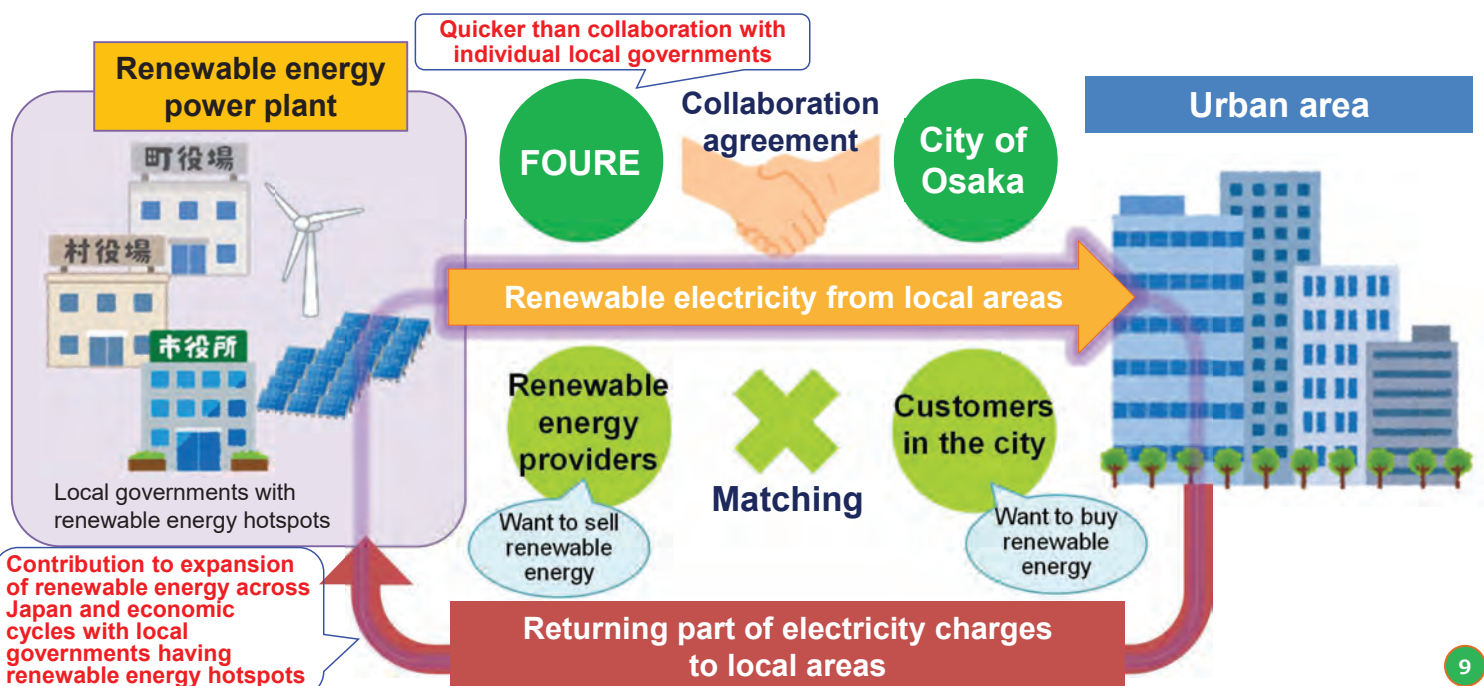
Characteristics of the Midosuji area model

— Interregional collaboration —

Renewable energy procurement matching to benefit hotspots

- A scheme that benefits local governments with renewable energy hotspots will be built by matching them with urban areas, which have limited renewable energy potential and consume a large amount of energy, as well as with local governments and companies in collaboration with the Association for Reciprocal Revitalization of Renewable energy and Region (FOURE*).

* A general incorporated association which has 50 member organizations and about 3,000 renewable energy power plants



Various approach for decarbonization Leading Area

Decarbonization of electricity in commercial sector

Thorough energy saving

- (1) ZEB conversion, Upgrade to high efficiency air conditioning and LED lighting, etc.

Maximize RE(renewable energy) use

- (2) On-site photovoltaics
Urban (building material-integrated) solar PV



- (3) Off-site photovoltaics(PPA)

- (4) Waste power generation
(Electricity wheeling for self-use)



- (5) Various RE source options for target user

Decarbonization of electricity in non-commercial sector

- (1) Transforming streets into human-centered spaces
 - Pedestrianization of side roads,
 - Introduction of ZEVs.



- (2) Effective Area Energy Use
 - Introduction of cogeneration to new buildings and energy supply to the existing buildings
 - Decarbonization of city gas
 - Use of groundwater heat for air conditioning



- (3) Greening of building rooftops and roadsides
- (4) Creation of liveliness



a) Home VPP in the city

Use of surplus electric power from photovoltaic generation at houses in the city



b) Existing sources in the city

- Solar power generation at primary and secondary schools
- Digestion gas power generation at sewage treatment plants.
- Biomass power generation using prunings from Mido-suji Street.



c) Interregional collaboration

Support for region suitable for renewable energy production



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Transformation of member buildings into ZEBs, etc.

Urbannet Midosuji Building (NTT Urban Development Corporation)

Overview of the building



Forward Stroke Inc.

Number of floors:

21 above ground, 2 underground

Total floor area: 42,425 m²

Completed: January 2024

Environmental performance/external certification

BELS evaluation: 5 stars (ZEB Ready certified (office))

CASBEE Osaka Mirai: Rank S

Equipment/measures for reducing environmental impact

Technologies to be evaluated:

- Use of waste heat from the cogeneration equipment (400 kW) as heat source for air conditioning
- Air management through introduction of cloud-based BEMS

GX × DX:

- Introduction of AI-based air conditioning control to lower floors
- Display of photovoltaic generation amount on the digital signboard in the building based on a multi-cloud environment

Passive technologies:

- Use of low-E glass for exterior windows

Other:

- Comprehensive Introduction of LED lighting throughout the building, with daylight/occupancy control
- Introduction of photovoltaic generation equipment (10 kW)
- Use of virtually 100% renewable energy for electric power used in the building



Cogeneration system

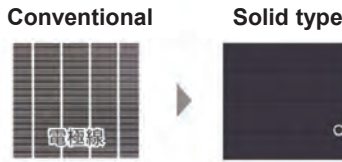
11

Transformation of member buildings into ZEBs, etc.

(Tentative name) Honmachi 4-chome Project (Taisei Corporation)

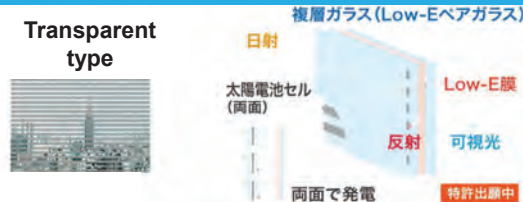
- T-Green®Multi Solar, a glass-integrated power generation system with a sophisticated design, will be used on the windows of the east, west, and south sides of the office space, covering the largest-ever area of 1,700 m².
- The office space will achieve the ZEB Ready certification to reduce the primary energy consumption of the building by 50%

Exterior window: solid type

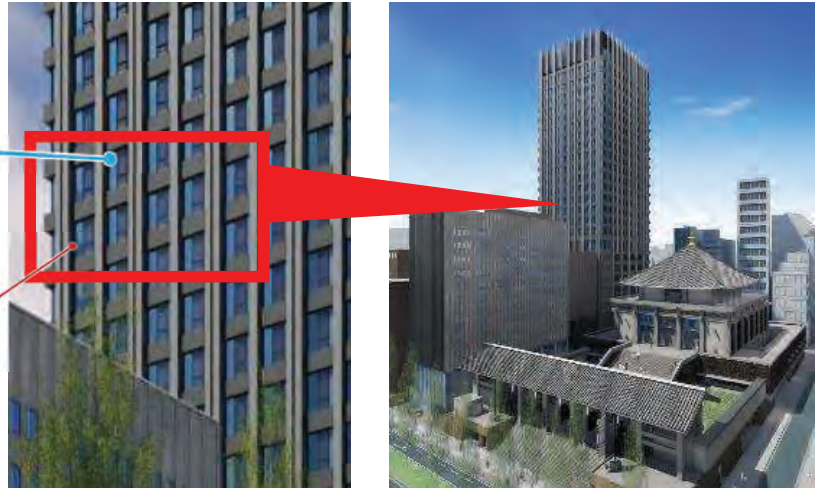


Achieving both a sophisticated design and high power generation efficiency (about 20%)

Exterior window: transparent type



Achieving both high visibility (opening rate: 50%) and high power generation performance (about 10%)

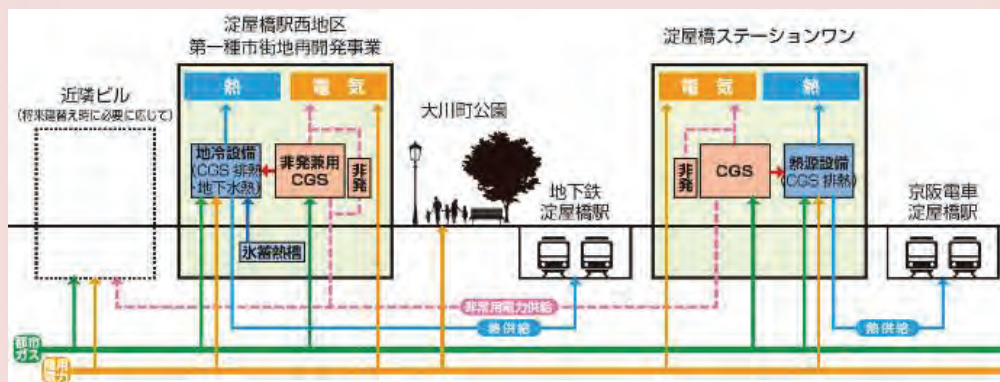


Transformation of member buildings into ZEBs, etc.

(Tentative name) Yodoyabashi Station West District Urban Redevelopment Project (Daiwa House Industry Co., Ltd., Sumitomo Corporation, Kanden Realty & Development Co., Ltd.)

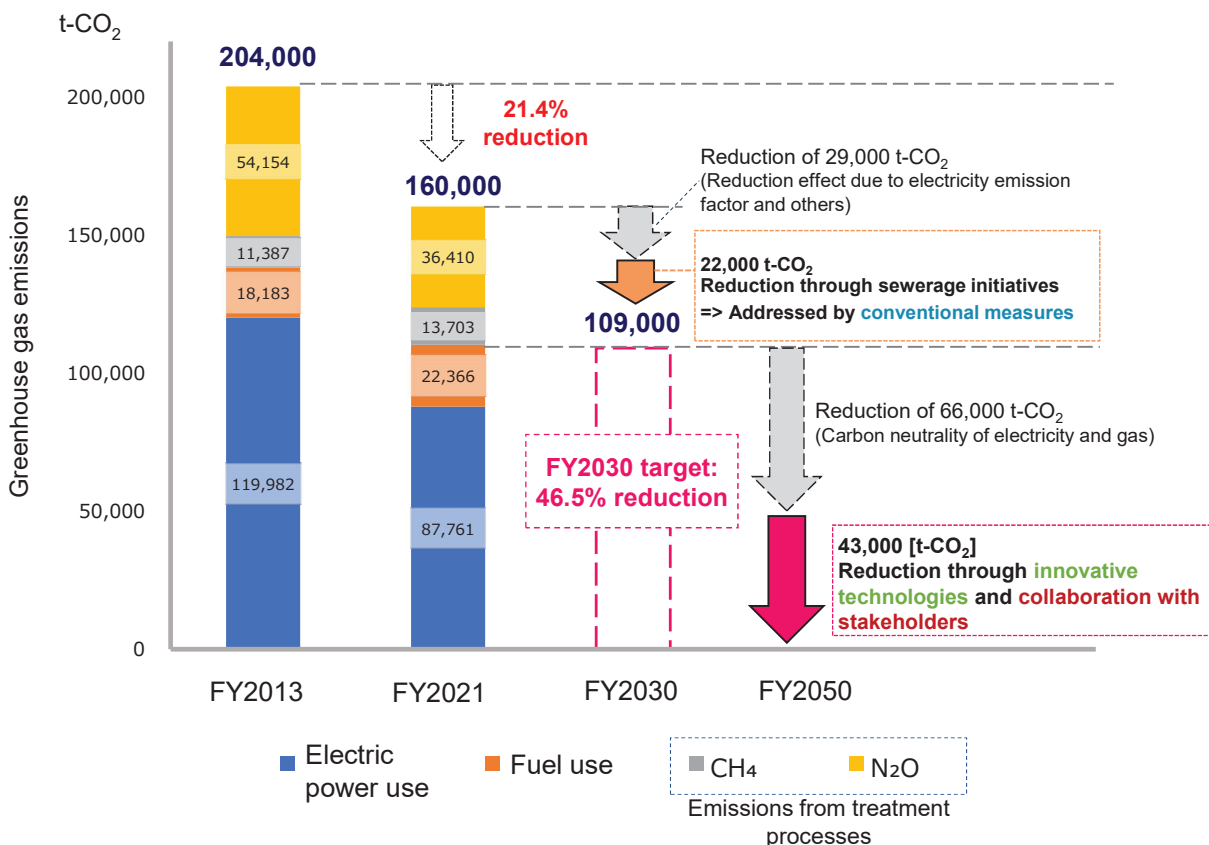
- A district heating and cooling system will be introduced to supply heat to Osaka Metro Yodoyabashi Station, with future consideration for supplying heat to surrounding districts under development.
- The BCD will be established, including temporary shelters and stockpiles for people unable to return home.

■ District heating and cooling system

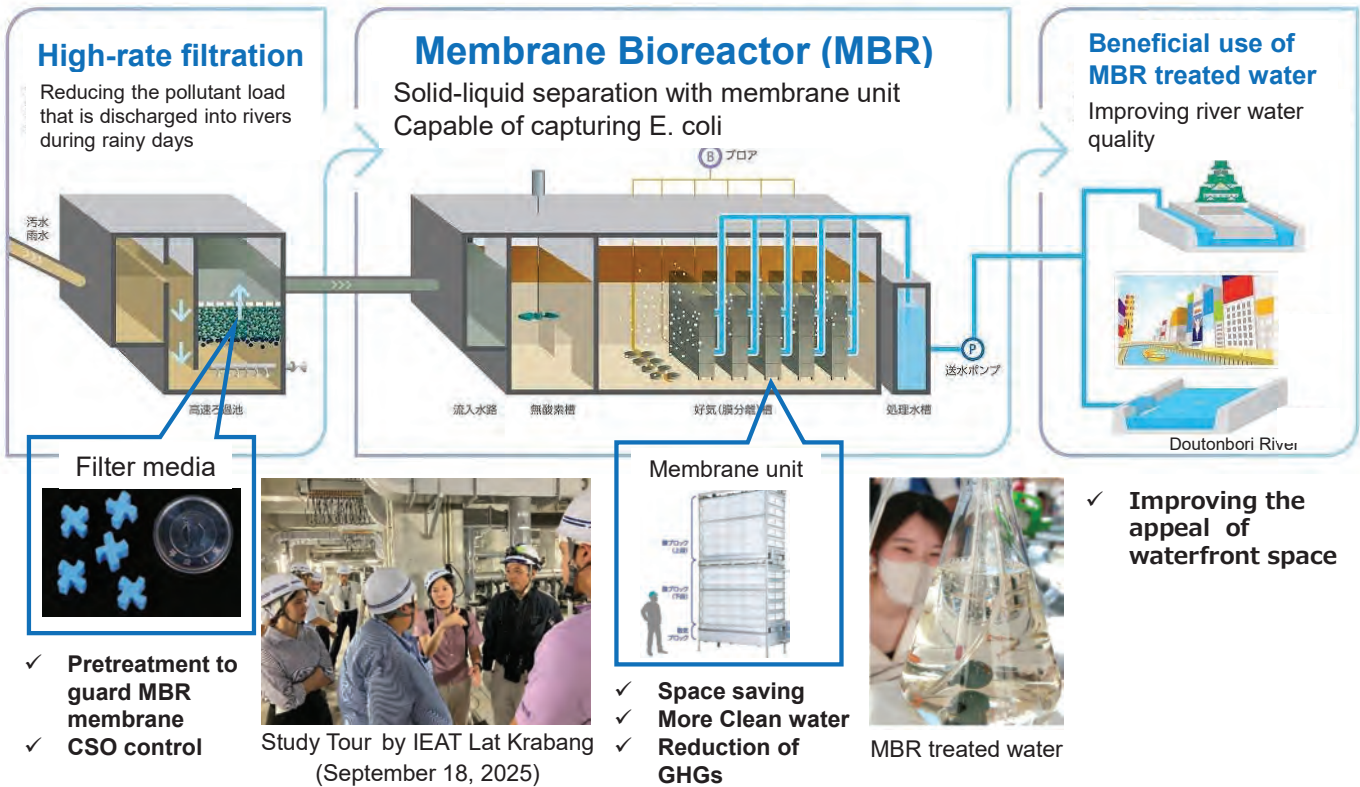


3.Reduction of GHG emissions in the sewerage sector

Reduction of greenhouse gas emissions from Osaka City's sewerage operations



Membrane Bioreactor (MBR) Distinctive approach



OSAKA CITY SEWERAGE SCIENCE MUSEUM

A Hub for Knowledge Sharing and Innovation



Global Outreach

The museum serves as a platform for exchanging knowledge and technologies related to global water environment issues, supporting initiatives in developing countries through public-private collaboration.

Learning and training

The museum provides learning opportunities for people of all ages - from children to adults - through engaging exhibitions and variety of events and programs that foster understanding of the sewerage system.

Technology development

The museum also functions as a hub for technical collaboration among industry, academia, and government, promoting the dissemination of technologies developed in Osaka City and fostering new innovations that address urban needs.



Study Tour by **IEAT Lat Krabang** (September 18, 2025)

添付1 ワークショップ関連資料

1.2 大阪市発表資料（環境教育）

Environmental Education in Osaka City



International Cooperation, Environmental Policy Division,
Environment Bureau, Osaka City

Structure Overview

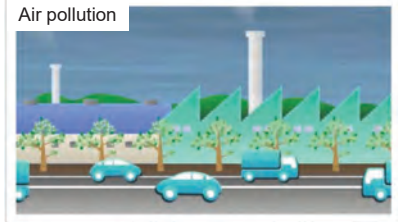
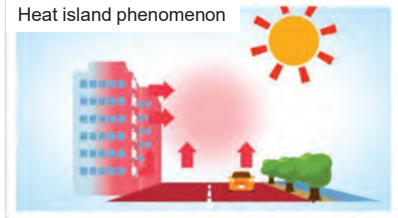


- Three types of supplementary readers
- Three types of teaching guides for teachers
- Audiovisual materials

(Creatures, Waste management, Heat island phenomenon, Air pollution, etc.)

The sounds of living creatures

 ヒヨドリ 【再生時間：1分0秒】	 カワラヒワ 【再生時間：1分1秒】	 メジロ 【再生時間：42秒】
 ムクドリ 【再生時間：1分0秒】	 シジュウカラ 【再生時間：1分1秒】	 ウグイス 【再生時間：1分1秒】



Fundamental Principles :

We aim to foster children who, through research-based learning and hands-on experiences, understand the relationship between human life and the environment and strive to live while valuing the environment.

■ Environmental issues are categorized into five fields:

1. Biodiversity
2. Circulation
3. Global Warming
4. Energy
5. Urban Environmental Conservation

■ Content tailored to developmental stages

■ Content unique to Osaka

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Budget and Creation Schedule

■ Total Budget : 6.3 million yen per year (About 1,320,000 THB)

- Printing costs: 6.13 million yen
- Supervision Honorarium: 170,000 yen

■ Creation Schedule

Month	Implementation Details
July	Draft editorial policy, schedule confirmation, etc.
August	Consolidation of opinions, preparation of revised drafts, etc.
September	Review of the draft after consolidating opinions
October	Request for proofreading to each department of Osaka City and other relevant parties
November	Placing an order for design outsourcing
December	Request final proofreading to Osaka City departments and other related parties, Sending a questionnaire request to each school, etc.
January	Compilation of survey results, Finalization of design layout, etc.
March	Delivery to each school

3

Creation method and budget



The graphs and pictures show the impact of global warming.

Preparation for global warming

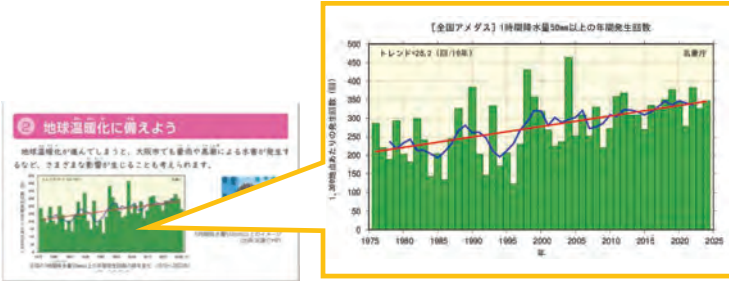
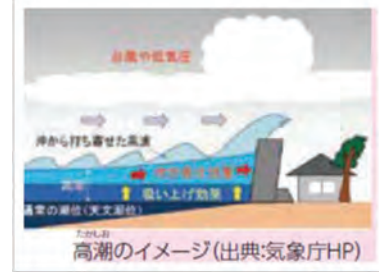


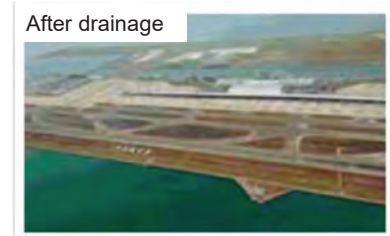
Image of a storm surge

(Source: Japan Meteorological Agency website)



Flooding at Kansai International Airport caused by Typhoon No. 21 in 2018

(Source: Kinki Regional Development Bureau website)



Global warming



These illustrations can be used to calculate the breakdown of CO2 emissions from your household, based on your monthly electricity and gas usage.

Electricity:

Monthly usage

$$\boxed{\text{ kWh }} \times 0.360^{**} = \boxed{\text{ kg }}$$

Gas:

Monthly usage

$$\boxed{\text{ m}^3} \times 2.29^{**} = \boxed{\text{ kg }}$$

**Emission factor:

A numerical value used to calculate how much carbon dioxide is emitted when generating 1 kWh of electricity or consuming 1 m³ of gas.

円グラフ「水道から」「照明家電製造などから」出る二酸化炭素

水道水を家庭に供給するまでに、浄水場や配水池などで電気を消費することから二酸化炭素が排出されます。

家電製品を使用する際の電気を発電するために発電所で石炭などの化石燃料を燃やすことで二酸化炭素が排出されます。

※ 電気を1kWh作る時、またはガスを1m³使うときにどのくらいの二酸化炭素が出るのかを計算し出すための数値(排出係数)です。

(出典) 電気:環境省HP(2020年度 関西電力株式会社調べ) ガス:大阪ガス株式会社調べ

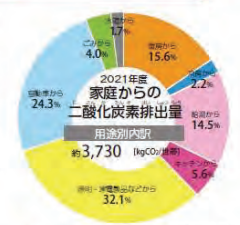
電気をガスを作る燃料が当たるとこの数値は、毎年ちがいます。電気を作るときに使う燃料が少なかったり、二酸化炭素を出さない自然の力を使ったエネルギーを使うと、この数値は少なくなります。

③ 家庭から出ている二酸化炭素

ここでは二酸化炭素を中心に見ていきます。右の円グラフは、家庭1世帯から1年間に排出された二酸化炭素の量を調べたものです。

みなさんの家庭からはどれくらいの二酸化炭素が出されているのでしょうか。

毎月の電気とガスの使用量をもとに調べてみましょう。



電気 当月の使用量 kWh × 0.299^{**} = kg

ガス 当月の使用量 m³ × 2.29^{**} = kg

合計すると... kg

使用量は、電気メーターや明細書で調べることができるよ。どこにあるかな?メーターの読み方は23ページを見てみよう。

円グラフを見てみると、照明や冷蔵庫、テレビなどの家電製品からや自動車からが多いね。

Summary



Environmental issues are categorized into five fields:

1. Biodiversity
2. Circulation
- 3. Global Warming**
4. Energy
5. Urban Environmental Conservation



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Thank you for listening.

International Cooperation,
Environmental Policy Division,
Environment Bureau, Osaka City

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添付1 ワークショップ関連資料

1.3 大阪市発表資料（イベント時における環境対策）

Actions for Promoting a Circular Economy in Osaka City

Workshop between Pattaya City and Osaka City
City to City collaboration 2025

International Cooperation,
Environmental Policy Division,
Environment Bureau
Osaka City

Nov.19, 2025

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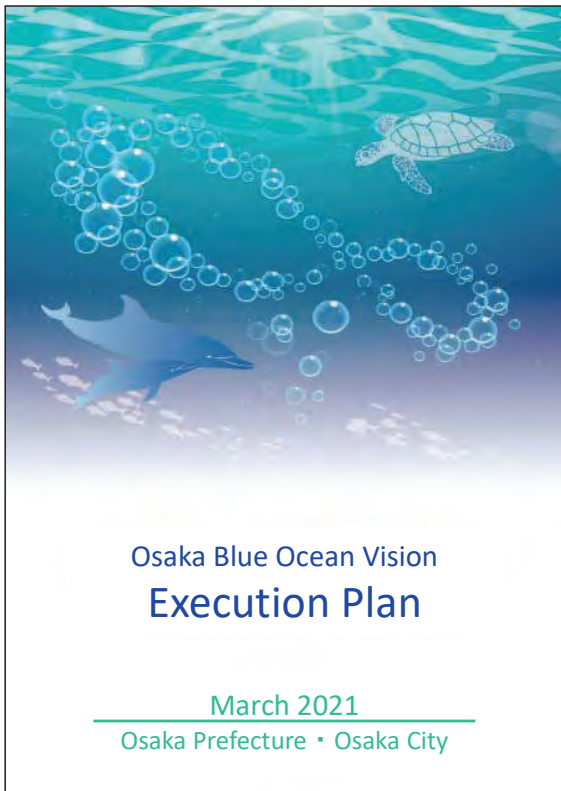
Actions for Promoting a Circular Economy in Osaka City

1. Osaka City's Osaka Blue Ocean Vision Execution Plan
2. distinctive initiatives at Osaka-Kansai Expo 2025

1. Osaka City's Osaka Blue Ocean Vision Execution Plan

2

As a Follow-up of “Osaka Blue Ocean Vision”

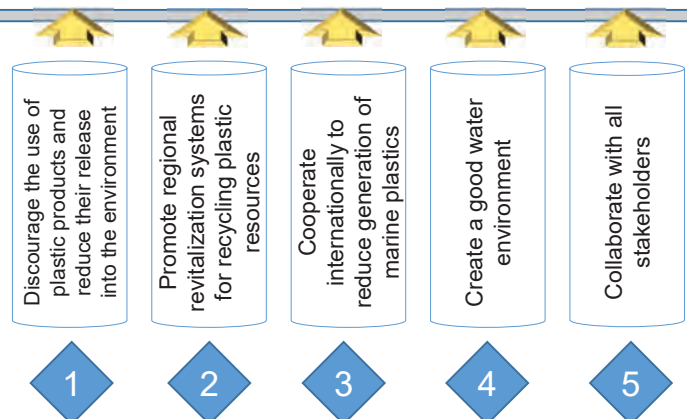


The Execution Plan aims to:

- Help achieve zero additional marine plastic pollution
- Help achieve the SDGs under the Osaka City Basic Environmental Plan as one of the plans for water environment

Targets of the Plan

- (1) Halve the amount of plastic waste entering Osaka Bay by FY 2030.
- (2) Achieve and maintain full compliance with the national environmental standards for water quality in the rivers and sea areas and raise the level of public satisfaction with the water environment to 40%.



The Five Pillars

Aims to become a leading SDG-City as the host city of G20 Osaka Summit and Expo 2025 Osaka, Kansai

3

Discourage the use of plastic products and reduce their release into the environment

◆ Promote Eco-Bag Campaign

- Promote the Osaka Eco-Bag Campaign, which encourages people to carry their own eco-bags at all times even for a quick shopping
- Has entered into the Osaka City Plastic Shopping Bag Reduction Agreement with 16 businesses and citizens' groups



Eco-bag promotion campaign



We conducted eco-bag promotion activities between January and March 2024, and disseminated information through SNS and other channels.

Furthermore, based on the "Act on Promotion of Resource Circulation for Plastics," which came into effect on April 1, 2022, efforts are being made to reduce the disposal of plastic waste and promote recycling. Integrated collection and recycling of "plastic resources" including not only plastic packaging from households but also plastic from products will be implemented from April 2025.

◆ Install drinking water filling stations and encourage use of "My Bottle"

- Reduce the use of disposable plastic containers by promoting the use of "My Bottle"



Osaka My Bottle Partner's logo mark

Awareness activities were conducted at the Waste Reduction Festival held in October 2024.



Drinking water filling station "Blue Switch" (Osaka Waterworks Museum)



My Bottle campaign event

We conducted promotion and awareness activities by lending the mobile water supply equipment 'Mizuiro Switch Portable' to event organizers and civic groups.

4

Discourage the use of plastic products and reduce their release into the environment

◆ Promote neighborhood cleanup

- Cleanup activities in cooperation with citizens, businesses, community groups, NPOs, etc.



"Osaka City All-out Clean Up Campaign"



Osaka Marathon SEASON TRIAL 2019

*From the Osaka City website

The 'Osaka Marathon 2024 Cleanup Operation' was held from February 3 to 23, 2024, over a period of 21 days.



Picking up trash along the Yodo-gawa River

◆ Environmental education

- Environmental education at elementary and junior high schools using the side reader "Osaka Environmental Study"



For 3rd/4th graders

For 5th/6th graders

For junior high students

Side reader for elementary and junior high school classes

These have been distributed to all municipal elementary and junior high schools. They are used at a rate of around 80% in elementary schools and around 70% in junior high schools.

◆ Children's poster contest

- Children's Poster Contest is held for elementary school students in the City, with various poster themes related to the environment.
- The contest theme for FY 2019 was "Let's Stop Marine Litter"



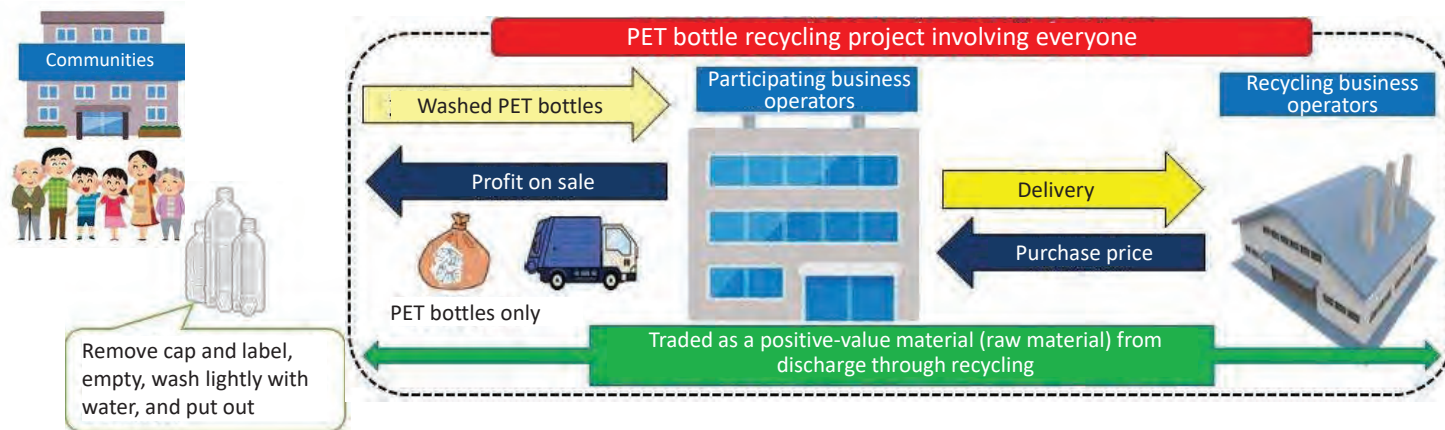
Mayor's Award (2019)



Displayed on garbage trucks running throughout the City

5

◆ PET bottle recycling project involving everyone

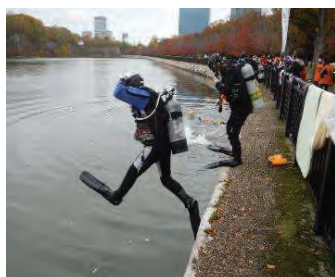


- In this system, **community groups and participating businesses work together to collect** PET bottles from households, which are currently collected by local government as recyclable waste
- Further **promote waste reduction and recycling** by increasing public awareness about separation-at-source
- Help communities enhance self-reliance by incorporation of “community business” element, **contributing to vitalization of communities**
- **Promote material recycling (bottle-to-bottle, etc.) and circulation of plastic resources in general in Japan** by enabling collection of clean and sorted PET bottles through full implementation of separation-at-source

◆ Cooperation with NPOs and civic groups

Cleanup of Osaka Castle Park East Outer Moat

Volunteer divers collect waste from the bottom and surface of the moat. Citizen volunteers also work together.



Divers go into the water and collect waste from the bottom and surface of the moat



Citizen volunteers assist in lifting up the waste ashore



Sakuranomiya Beach Festival

Held on the only man-made beach in Osaka City on the left bank of the Okawa River, this event encourages people to feel close to and love the waterfront.

In cooperation with community groups and businesses, the event aims to deepen the interaction between people and waterfront in their daily lives through play and learning.



Beach seining to catch living creatures at the man-made beach



Drawing sketches of the caught fish



After the event, all participants clean up the beach

2. The distinctive initiatives at Osaka-Kansai Expo 2025

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Policy at the Expo



◆ EXPO 2025 Green Vision

Sustainability Policy

[Desired Direction]

1. We thoroughly work to suppress greenhouse gas emissions by introducing CO2 reduction and energy-saving technologies, and by utilizing renewable energy and other resources.
2. We actively promote the effective use of resources by implementing the 3Rs: Reduce, Reuse, and Recycle, making active use of available materials and components, as well as engaging in efforts towards renewables.
3. We are working to conserve and restore the natural environment and ecosystems within the venue as a key site for the ecological network in coastal areas.

Specific efforts related to
resource circulation (venue
operations)

To realize a recycling-oriented society, we thoroughly reduce waste through practices of reducing and reusing and rigorously recycle resources that have been separated and discharged. Specifically, our efforts include using reusable tableware by kitchen cars, encouraging visitors to bring their own bottles, providing water stations within the venue for public use, calling on people to bring their own bags as countermeasures against plastics, and taking steps to reduce food loss.

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◆ 3R Station (Waste Separation Station)

		Exhibitor	Visitor
1.	Leftover drinks	—	●
2.	Kitchen waste	●	●
3.	Waste cooking oil	●	—
4.	Commercial cans	●	—
5.	Cans (aluminum cans, steel cans)	●	●
6.	Bottles	●	—
7.	PET bottles	●	●
8.	PET bottle caps	●	●
9.	Styrofoam / Foam trays	●	●
10.	Plastics	●	—
11.	Compostable tableware	●	—
12.	Cardboard	●	—
13.	Paper	●	●
14.	Disposable paper diapers	—	●
15.	Sludge (grease trap)	●	—
16.	Wooden pallets	●	—
17.	Disposable chopsticks	●	—
18.	Burnable waste	●	●
19.	Non-burnable waste	—	●
20.	Mixed waste	●	—
		17categories	10categories

◆ 3R station (Waste Separation Station)



Source/Reference:
Osaka-Kansai Expo official website



To further promote the separation of caps and labels at the 3R Station, notices were attached to the collection boxes.

■ Measures against the distribution of single-use shopping bags

- Calling on visitors to bring their own bags
- Requiring exhibitors and vendors to sell eco-friendly bags or paper shopping bags

→ Suppressing single-use items and reducing the use of plastics



■ Promoting the use of personal bottles

- Installing approximately 90 water stations
- Calling on visitors to bring their own bottles
- Providing information about water stations on the venue map

→ Reducing the amount of PET bottle usage



Source/Reference:
Osaka-Kansai Expo official website

12

■ Introduction of reusable tableware

- Introducing reusable tableware in food truck areas, where disposable tableware is often used

→ Reducing the use of single-use plastic tableware



■ Encouraging visitors to finish their meals and providing menu options in portions that can be fully consumed.

- Encourage visitors to finish their meals
- Increase menu variations, such as offering small portion options

→ Suppress the generation of food waste.



Source/Reference:
Osaka-Kansai Expo official website

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◆ Examples of recycling measures for waste generated within the Expo venue.

■ Horizontal recycling of PET bottles.

- Used PET bottles are horizontally recycled into new PET bottles



Source: PET Bottle Recycling Annual Report 2023 (Bottle Recycling Promotion Association)

■ Composting of biodegradable plastics.

- Biodegradable plastics used in certain areas of the food truck section will be composted together with food waste generated within the venue.



Source/Reference: Osaka-Kansai Expo official website

◆ Examples of recycling measures for waste generated at the Expo venue.

■ Biogas production and composting of food waste.

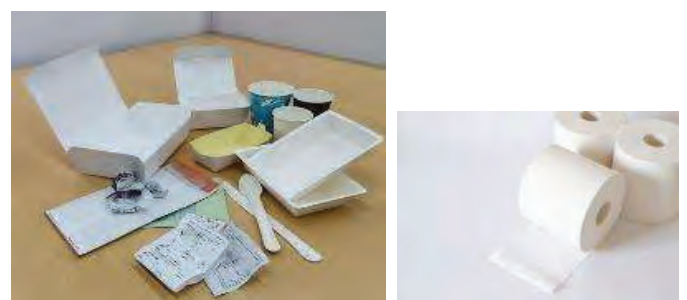
- Leftover food and inedible parts generated within the venue are converted into biogas inside the venue, composted using composting machines on-site, and further composted at off-site composting facilities.



Source: Osaka Gas Co., Ltd.

■ Recycling of hard-to-recover wastepaper

- The venue seeks to reduce and eliminate plastic usage, and an increase in the use of paper as an alternative material to plastic is expected.
- Therefore, recycling will be carried out for used paper tableware and similar items that are soiled and difficult to recycle.



Source/Reference: Osaka-Kansai Expo official website

Efforts at the Expo: Demonstration experiment for recycling disposable diapers.

◆ Examples of recycling measures for waste generated within the Expo venue.

■ Used disposable diapers are recycled into toys and other products

- A demonstration experiment will be conducted during the Osaka-Kansai Expo to collect and recycle used disposable diapers generated at the venue.
- Collection boxes will be installed at diaper changing stations within the venue, and the collected diapers will be separated into pulp and plastic at recycling plants. These materials will then be upcycled into playground equipment, shelves, diaper collection boxes, and other products. By demonstrating this integrated process from collection to recycling, the significance of such initiatives will be communicated to society.



Source/Reference:
Osaka-Kansai Expo official website



Source/Reference: © TOPPAN Inc.
Osaka-Kansai Expo official website

Efforts at the Expo: Estimation and Target Setting of Greenhouse Gas Emissions (equivalent to Scope 1 and 2)

[t-CO₂e]

Scope	Emission Source	GHG Emissions	0	5,000	10,000	15,000	20,000	25,000	30,000	35,000
1	Fuel used in facilities (on-site)	4,979	[Bar chart showing 4,979 t-CO ₂ e]							
	Fuel used for on-site transportation	162	[Bar chart showing 162 t-CO ₂ e]							
	Leakage of refrigerants from air conditioners (on-site and off-site)	72	[Bar chart showing 72 t-CO ₂ e]							
2	Electricity used in facilities (on-site and off-site)	31,080	[Bar chart showing 31,080 t-CO ₂ e]							
	Electricity used for on-site transportation	9	[Bar chart showing 9 t-CO ₂ e]							
	Electricity used in Association offices and off-site parking	2,527	[Bar chart showing 2,527 t-CO ₂ e]							
	Heat consumed in Association offices	302	[Bar chart showing 302 t-CO ₂ e]							
		Scope 1SUM : 5,213(t-CO ₂ e) Scope 2SUM : 33,919(t-CO ₂ e) Scope 1, 2SUM : 39,133(t-CO ₂ e)								

* Emission figures based on Business As Usual (BAU) scenario (no countermeasures)

Reduction Measures

- Energy-saving building design (using high-insulation/heat-shielding materials)
- Introduction of energy-saving technologies (chilled water plant, cooling system, energy visualization, air-conditioning energy management)
- Electrification of transportation systems and use of zero-emission electricity
- Introduction of biodiesel for logistics where electrification is difficult
- Credit compensation for remaining emissions, etc.

Efforts at the Expo: Estimation and Target Setting of Greenhouse Gas Emissions (equivalent to Scope 3)

Category	Emission Source	Emission Source	0	500,000	1,000,000	1,500,000	2,000,000	2,500,000	3,000,000	3,500,000
Category 1 (Purchased Products and Services)	Operations (Purchase of Goods and Services)	113,974	[Bar chart showing 113,974 t-CO ₂ e]							
Category 2 (Capital Goods)	Construction and Infrastructure Development	361,700	[Bar chart showing 361,700 t-CO ₂ e]							
Category 3 (Fuel and Energy-Related Activities Not Included in Scope 1 or 2)	Fuel and Electricity Used	14,283	[Bar chart showing 14,283 t-CO ₂ e]							
Category 5 (Waste Generated in Operations)	Waste Generated During Event Period	2,749	[Bar chart showing 2,749 t-CO ₂ e]							
Category 6 (Business Travel)	Business Travel by Association Staff	3,545	[Bar chart showing 3,545 t-CO ₂ e]							
Category 7 (Employee Commuting)	Commuting by Association Staff, Volunteers, and Related Personnel to Venue	2,533	[Bar chart showing 2,533 t-CO ₂ e]							
Category 12 (Disposal of Sold Products)	Construction Waste Including Demolition of Buildings/Infrastructures	167,343	[Bar chart showing 167,343 t-CO ₂ e]							
Others: Visitors (Expected total: 28.2 million from Japan and overseas)	Transportation, Accommodation, Dining (On-site) Shopping (On-site and Officially Licensed Products)	2,858,622	[Bar chart showing 2,858,622 t-CO ₂ e]							

Scope 3 : SUM3,524,747(t-CO₂e)

* Emission figures based on Business As Usual (BAU) scenario (no countermeasures)

Reduction Measures

- Promotion of low-emission transportation
- Encouragement of electric vehicles and fuel-efficient cars
- Adoption of synthetic fuels, biodiesel, etc.
- Building reuse (leasing, active use of wood)
- Active use of low-carbon materials
- Reduction and recycling of food waste
- Reduction of plastic use (e.g. reusable tableware)

Source/Reference: Osaka-Kansai Expo official website 18

Efforts at the Expo: Initiatives for Future Behavioral Change (EXPO Green Challenge)

Encouraging companies, schools, municipalities, and organizations to take collective CO₂ reduction actions triggered by the EXPO, starting before the event and aiming to create a legacy toward a decarbonized society. • The initiative is called the "EXPO Green Challenge." Emissions reductions are counted, aggregated, and monitored.

EXPO Green Challenge

- Activities to promote behavioral changes leading to CO₂ reduction triggered by the EXPO
- Practice challenge menu through the EXPO Green Challenge App (App released on March 7, 2024)
 - Collaborate with companies, schools, and municipalities to implement activities
 - Calculate CO₂ reduction for each activity

※1 Credits and other instruments certified by third-party organizations will be used as offsets for EXPO GHG emissions. ※2 The use of high-purity biodiesel refined from waste oil for on-site operations and construction machinery will contribute to GHG emission reductions at the EXPO.

Source/Reference: Osaka-Kansai Expo official website 19

- Choosing travel options with lower greenhouse gas emissions compared to conventional trips
- Collaboration with Osaka City's decarbonization tour program, incorporating carbon offset schemes and participation in low-emission trips (mainly school trips)
- Points awarded by scanning QR codes when joining such trips, in cooperation with travel agencies and other organizations



Decarbonization Tours :

- Targeted mainly at elementary, junior high, and high schools nationwide
- Includes attendance at the Osaka-Kansai EXPO 2025 for at least half a day and staying overnight in the Osaka area
- Visualizes CO2 emissions from transportation, accommodation, activities, and meals, and encourages the selection of low-impact travel options to reduce emissions compared to a standard model course※
- Incorporates pre- and post-learning about decarbonization

※Model course is set based on the most common school trips to Kansai (including Osaka stays)

Thank you for your attention.

添付1 ワークショップ関連資料

1.4 日本工営発表資料

City-to-City Collaboration for Zero-Carbon Society in FY2025 Osaka City, Pattaya City and Rayong City (Phase1 / 1st Year)

**Workshop for Hotel Association in Pattaya City
November 19, 2025**

日本工営株式会社

1. Company Profile



- Corporate name : Integrated Design & Engineering Holdings Co., Ltd.
- Established : July 3, 2023
- Capital : 7,553 million yen
- Number of employees : 6,648
- Business areas : Management and related business activities of group companies
- Web site : <https://www.id-and-e-hd.co.jp/english/>

◆ ID&E Group Structure



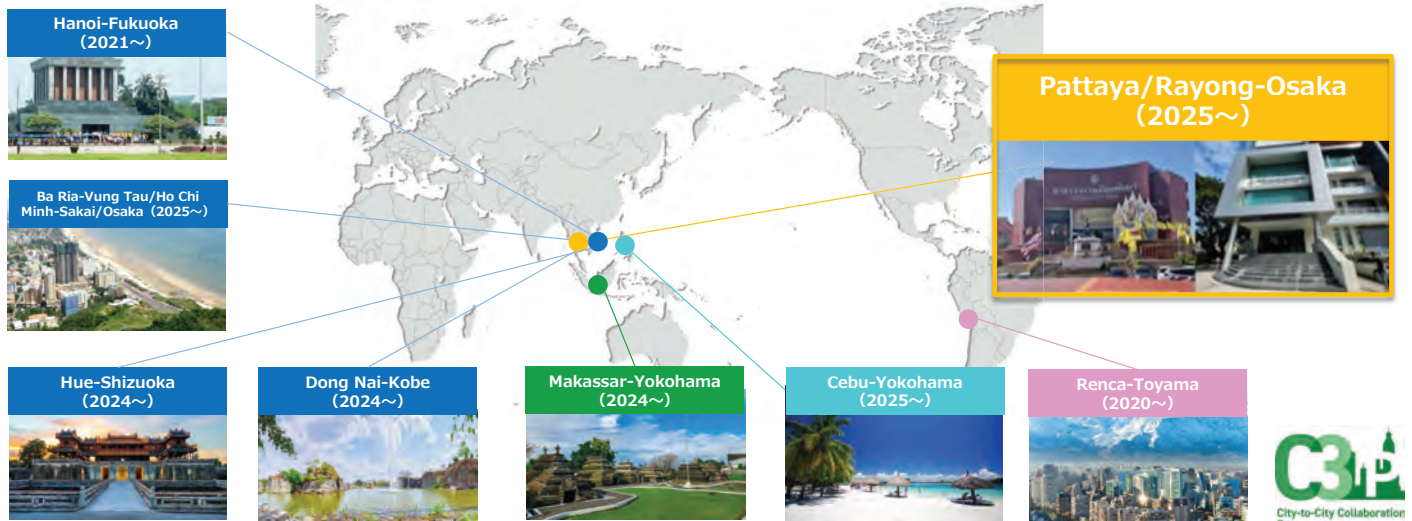
- Corporate name : Nippon Koei Co., Ltd.
- Established : June 7, 1946
- Capital : 500 million yen
- Number of employees : 1,963
- Business areas : Consulting Business (domestic/overseas)
- Web site : <https://www.n-koei.co.jp/consulting/english/>

◆ Overseas Network



2. City to City Collaboration Program for Zero-Carbon Society Supported by the Ministry of the Environment, Japan

- City to City Collaboration Program began in 2013, participating **56** cities/regions in **13** countries, mainly in Asia, and **20** cities/regions in Japan.
- Nippon Koei has participated in this Program since 2015, and in FY2025, **8** projects are ongoing.



Support for Designing Decarbonization Society in Pattaya City and Rayong City

3. Project Background

- Osaka City and the Eastern Economic Corridor (EEC) of Thailand started the City-to-City Collaboration Project in 2019, signed MoU in 2022 and agree to cooperate in promoting carbon neutrality in the EEC region.
- In Phase 2 activities between Osaka City and EEC, exchanges with Pattaya City and Rayong City were started with the aim of developing a decarbonization dominos in EEC region.

Past activities with Pattaya City and Rayong City in FY2024



Activities with Pattaya City

- November, 2022 : First meeting with Pattaya City
- October, 2024 : Meeting with Pattaya City and Osaka City

Potential Decarbonization Activities

- Developing environmental infrastructure as tourist city
- Reducing GHG emissions in transportation sector and hotels
- Waste oil recycle/EV/Offsetting events in Pattaya City/Waste wood utilization, etc.



Activities with Rayong City

- July, 2024 : First meeting with Rayong City
- October, 2024 : Meeting with Rayong City and Osaka City

Potential Decarbonization Activities

- Promoting decarbonization in Industrial Parks and factories
- Green smart city plan
- Hydrogen/Waste treatment and recycling/Waste wood utilization, etc.



Activities between Osaka City and EEC

- October, 2019 : Started City-to-City collaboration activities between Osaka City and EEC (Phase 1)
- February, 2022 : Signed "Memorandum of Understanding for Cooperation to Achieve Carbon Neutrality" between Osaka City and EEC
- February, 2025 : Hold Policy Dialogue between Osaka City and EEC in Thailand. Pattaya City and Rayong City were invited and introduced their environmental efforts as well.

Support for Designing Decarbonization Society in Pattaya City and Rayong City

4. Project Outline

- This Project aims to further promote the Thai version of the decarbonization domino by sharing City's experience and expertise in decarbonizing touristic and industrial hub areas, diffusing and deploying decarbonization technologies by Japanese companies, and providing support for JCM Project formation to Pattaya City and Rayong City, which are key decarbonization areas in the EEC region.

Two Pillars of City-to-City Collaboration Project

Concept of the Project

① City-to-City Collaboration Activities

Exchanges both cities' knowledge on decarbonization of tourist areas and decarbonized urban development and building a network of Japanese and Thai companies through workshops and other activities.

② JCM Projects Formulation Activities

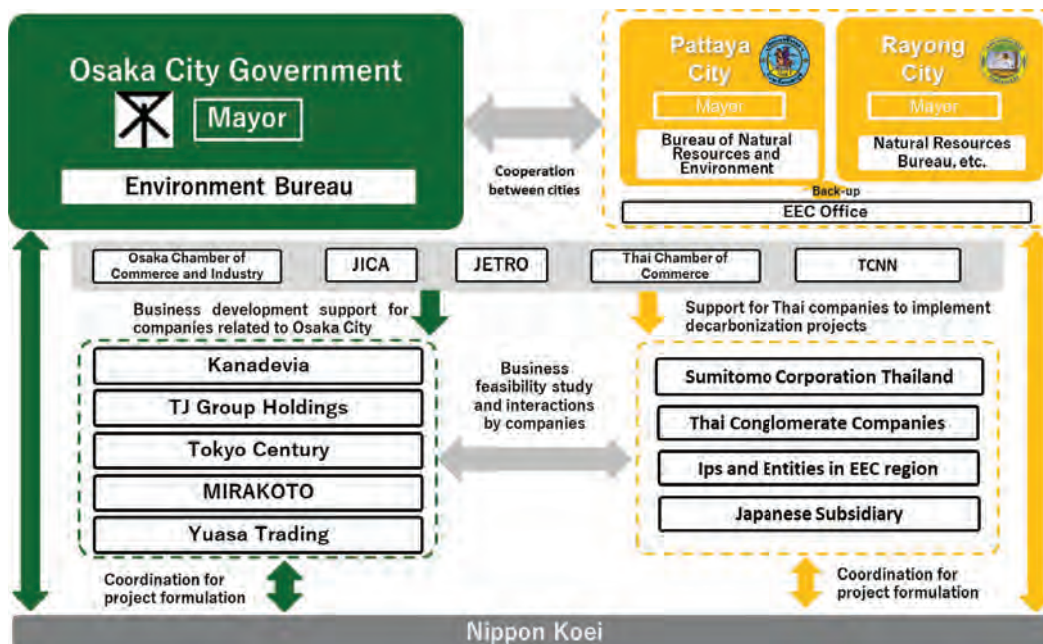
Utilize JCM to examine the introduction of decarbonization technologies by Japanese companies and implement decarbonization projects in both cities.



Support for Designing Decarbonization Society in Pattaya City and Rayong City in FY2025

5. Implementation Structure

◆ Implementation Structure



Potential Survey of JCM Candidate Projects:

- Waste to energy project
- Woody biomass power generation project using pruned branches
- Project to introduce high-efficiency air conditioning and heat pumps for hotels and factories
- Projects to introduce decarbonized infrastructure in IPs, Smart City plans, etc.
- Crediting project through biochar business

Consideration of new businesses in line with the requests of Thai companies, etc.:

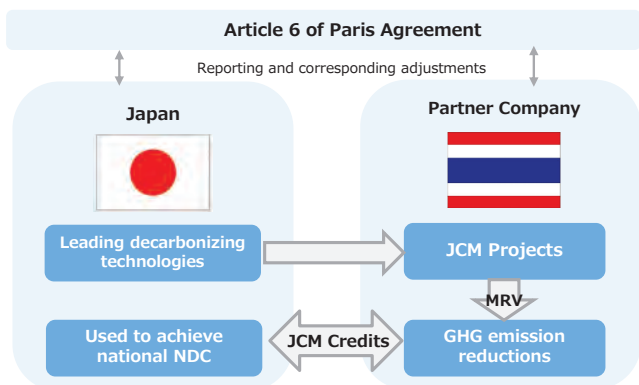
- Site visit on Industrial Parks, Factories, etc.



6. Introduction of JCM Scheme [1/4]

The Joint Crediting Mechanism (JCM), launched in 2013 and implemented under Article 6 of the Paris Agreement, is a mechanism to contribute to the reduction and absorption of GHG emissions and sustainable development in partner countries through the dissemination of superior decarbonization technologies, products, systems, services, and infrastructure in partner countries.

Overview of JCM scheme



MRV: Measurement, reporting and Verification

- JCM partner companies : 31
- Number of selected JCM : 266
- Estimated GHG emission reductions : 3,328,462 t-CO2/year
- Budget for JCM Model projects(subsidy) : 25.8 billion THB (3 years)
- JCM model projects' application period for FY2025 :
 1. 2025.05.16
 2. 2025.07.25
 3. 2025.09.30
- Web site : <https://gec.jp/jcm/>

- Thailand signed the MOU in 2015, and 54 JCM projects have been adopted.
- Memorandum of Cooperation on JCM was renewed between Thailand and Japan on July 8, 2024.

6. Introduction of JCM Scheme [2/4]

Application requirements for JCM Model Projects

<p>Project Scale Subsidy amount will be</p> <p>Max. 2 billion JPY (= 20 mil. USD) (= 500 mil. THB)</p>	<p>Project Period Project should be commenced</p> <p>within 3 years</p>	<p>GHG reductions GHG emission reduction is expected to be more than</p> <p>1,000 tCO2/y</p>
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Cost Effectiveness

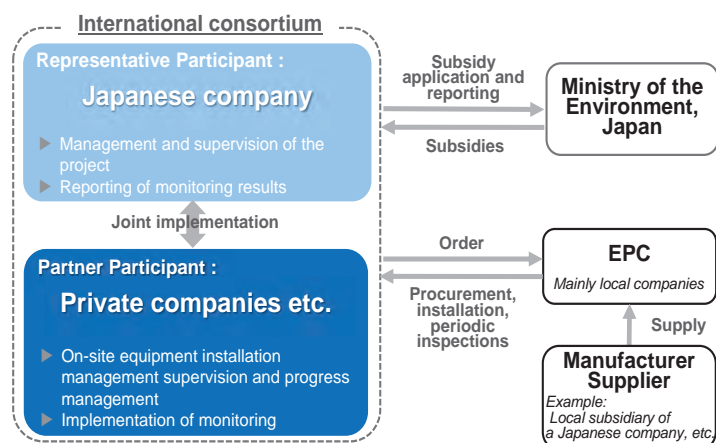
Cost effectiveness should be **4,000 JPY/tCO2 or lower.**

$$\text{Cost effectiveness} = \frac{\text{(Total amount of subsidy [JPY])}}{\text{(Total GHG emission reduction [tCO2/y])} \times \text{(Legal durable years)}}$$

, based on Japanese regulation

Note: In the case of solar power projects, if the number in a partner country is more than 5, its cost-effectiveness is expected to be less than or equal to 3,000 JPY/tCO2.

Application formation for JCM Model Projects



Note: Local government in the partner country can be joined as partner participants.

6. Introduction of JCM Scheme [3/4]

Target Technologies for JCM Model Projects

Renewable Energy		Waste to Energy	
Solar Power  not eligible in Thailand	Wind Power  Max 50%	Biogas generation  Max 50%	Waste to Energy  Max 40%
<small>URL : https://www.hitachizosen.co.jp/news/2017/06/002645.html URL : https://www.carbon-markets.go.jp/column/waste_mgmt_biomass/1603/</small>			
Energy-saving			
Boiler  Max 40%	High Efficiency Chiller  Max 30%	High Efficiency Pump  Max 40%	Air-Conditioning Control System  Max 40%

Number of adoptions of the same technology in the same country	Max rate of JCM subsidy
0project	50%
1-3 projects	40%
4-7 projects	30%
8-9 projects	20%
10 projects or more	not eligible

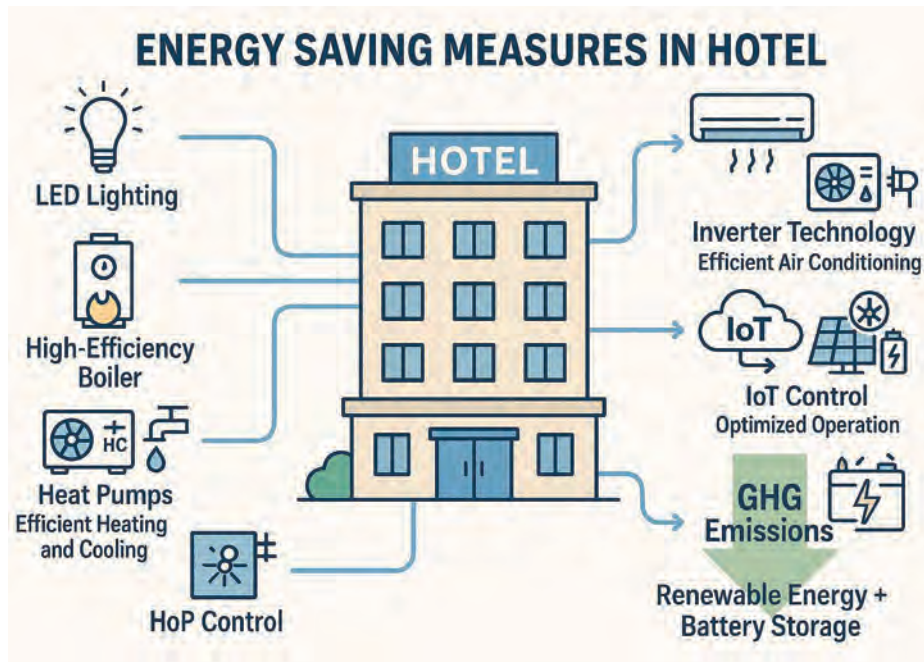
6. Introduction of JCM Scheme [4/4]

◆ JCM Projects in Thailand

Following the adoption of the Paris Agreement at COP26, the Thai and Japanese governments held discussions on revising the JCM rules, and in July 2024, the JCM cooperation memorandum and implementation rules of both governments were updated and integrated into Thailand's domestic carbon credit system, T-VER. As a result, applicable technologies under JCM have been changed. Following are the potential technologies that the Thai government envisions under the bilateral cooperation based on Article 6 of the Paris Agreement.

Potential Activity under the International Cooperation Framework

	Field	Example
1	Capture, Storage or Utilization	CCS, CCU, BECCS, DAC
2	Renewable Energy or Alternative Energy to Fossil Fuels	Green Hydrogen Energy, Geothermal Energy, Tidal Energy, Offshore Wind Power
3	Energy Efficiency Improvement in Buildings, Factories, or Households	High-efficiency Electric Furnaces and Electric Boilers as Fossil Fuel Furnace Replacements, High-Efficiency Electric Motors
4	Energy Efficiency Improvement in Power Generation or Heat Production	Energy Storage, Green Pellet Production from Agricultural Waste for Sustainable Heat and Power Generation
5	Transportation, Electric Vehicles, or Engine Efficiency Improvement	Plug-in Hybrid Electric Vehicles (PHEVs) with a Fuel Cell
6	Process Improvement or Industrial Waste Management	Carbon Cured Cement, E-methanol from CO2 and Green Hydrogen
7	Process Improvement or Waste Management in Agriculture and Livestock	Livestock Feed Improvement, Advanced Bioethanol



- ### Energy-Saving Measures
- LED Lighting for efficient illumination
 - High-Efficiency Boiler for reduced fuel consumption
 - Heat Pumps for efficient heating and cooling
 - HoP Control (Heat Pump control) for optimized performance
 - Inverter Technology for efficient air conditioning
 - IoT Control for energy monitoring and optimized operation
 - Renewable Energy + Battery Storage to reduce GHG emissions.

- ### Benefits for Hotel
- Energy Cost Reduction
 - GHG Emissions Reduction
 - Sustainable Hotel
 - Brand Value Improvement

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Reference: Example of JCM Model Projects in the Hotel [1/2]

1 Introduction of **High Efficiency Air-conditioning System** to Hotel in Ho Chi Minh City

Host Country	Vietnam
Representative Participant	Hitachi-Johnson Controls Air Conditioning, Inc.
Partner Participant	Thanh Van Hotel Development Investment Joint Stock Company

This project reduces greenhouse gas (GHG) emissions by introducing a high efficiency air-conditioning system into a new hotel in Ho Chi Minh City to save power consumption.

- Hotel Outline :
 - 19 floors above ground, 3 floors underground, 125 rooms
- Introduced facilities
 - 54 Outdoor units, 169 Indoor units, 20 All fresh units.

Expected GHG Emission Reductions **180 tCO2-eq./year**

2 Introduction of **High Efficiency Air-conditioning** in Hotel

Host Country	Vietnam
Representative Participant	NTT Data Institute of Management Consulting, Inc
Partner Participant	Peace Real Estate Investment Company Limited

While non-inverter air conditioner with poor energy efficiency is popular in hotels in Vietnam, this project is intended to achieve the energy saving as a whole with the introduction of high efficiency air-conditioning system, which is introduced to the new Novotel Suites in Hanoi (total floor area of about 29,000m², 17 floors above ground, two floors underground, 200 rooms), and achieves GHG emission reductions from reducing power consumption with introduction of high efficiency air-conditioning.

Expected GHG Emission Reductions **935 tCO2-eq./year**

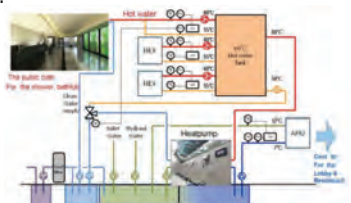
Source: GEC, JCM website

Reference: Example of JCM Model Projects in the Hotel [2/2]

3 Energy Saving by Installation of **Double Bundle-type Heat Pump**

Host Country	Indonesia
Representative Participant	Toyota Tsusho Corporation
Partner Participant	PT.TTL Residences

In order to reduce diesel oil consumption, a double bundle-type heat pump, generating both heating and cooling energy, is installed into the thermal supply system in serviced apartments. The heat pump also supplies cooling energy for air conditioning in the hotel to reduce the electricity consumption. The heat pump is capable of high temperature heating (more than 60 degrees C), and its efficiency combining heating and cooling is expected to be 400-500%.

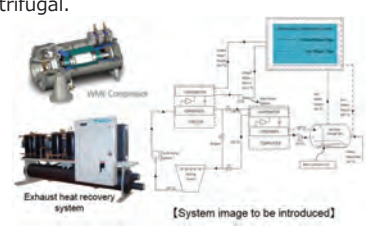


Expected GHG Emission Reductions **175 tCO2-eq./year**

4 Introduction of the **High Efficiency Chiller and the Exhaust Heat Recovery System**

Host Country	Costa Rica
Representative Participant	NTT Data Institute of Management Consulting, Inc
Partner Participant	MGM Sustainable Energy Limitada

This project aims to improve the energy efficiency of a luxury hotel's air-conditioning system by replacing the existing centrifugal chiller with a high efficiency chiller and existing heavy oil boilers with a water heater utilizing the waste heat from the chiller. The high efficiency chiller (Daikin WMC400DC) delivers; low operating noise (76dBA), optimized control through digital, easy to maintenance. It enables to improve the energy efficiency of up to 40% compared to a standard centrifugal.



Expected GHG Emission Reductions **585 tCO2-eq./year**

Source: GEC, JCM website

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Reference: Example of JCM Model Projects in Thailand [1/2]

1 Introduction of **LED Lighting** to Sales Stores

Host Country	Thailand
Representative Participant	FAST RETAILING CO., LTD.
Partner Participant	UNIQLO (THAILAND) CO.,LTD.

Lighting equipment is major energy consumption sources at sales store. This project contributes to the reduction of GHG emission at sales stores in Thailand by installation of high efficiency LED lightings. Those equipment are installed stores centering around Bangkok.

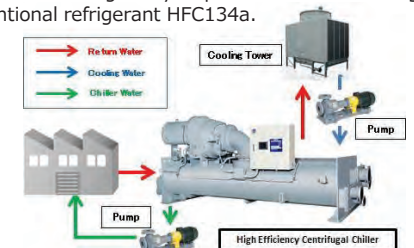


Expected GHG Emission Reductions **1,649 tCO2-eq./year**

2 Energy Saving for **Air-Conditioning** in Tire Manufacturing Factory with **High Efficiency Centrifugal Chiller**

Host Country	Thailand
Representative Participant	Inabata & Co., Ltd.
Partner Participant	Bridgestone Tire Manufacturing (Thailand) Co., Ltd.

An introduction of the high efficiency Centrifugal Chiller realizes energy saving of the air-conditioning and reduces CO2 emissions. The Centrifugal Chiller adopts a high-performance compressor (two stage compressor), which miniaturizes the compressor and reduces electric power consumption. In addition, the chiller adopts refrigerant HFC245fa which has higher cycle performance and energy efficiency than conventional refrigerant HFC134a.



Expected GHG Emission Reductions **208 tCO2-eq./year**

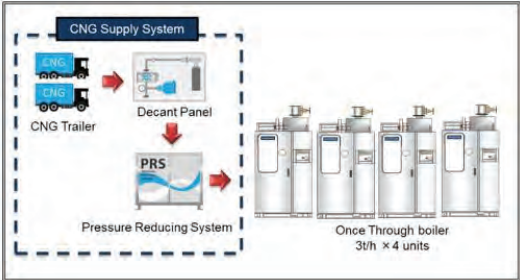
Source: GEC, JCM website

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3 Introduction of **High Efficiency Once Through Boiler** to Garment Factory

Host Country	Thailand
Representative Participant	Osaka Gas Co., Ltd.
Partner Participant	OSAKA GAS (THAILAND) CO., LTD. , Parfun Textile Co., Ltd.

This project saves energy consumption by replacing existing water tube boilers with high-efficiency once-through boilers (boiler efficiency 98%) at a garment factory. It also reduces greenhouse gas (GHG) emissions by switching fuel from coal to natural gas.



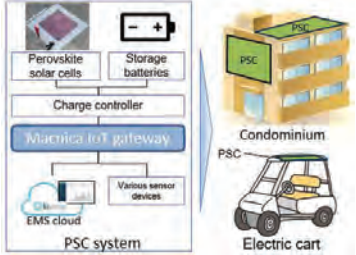
Expected GHG Emission Reductions **2,665 tCO2-eq./year**

Source: GEC, JCM website

4 Demonstration Project of **Perovskite Solar Cell System** in Subtropical Region

Host Country	Thailand
Representative Participant	Macnica, Inc.
Partner Participant	Sena Green Energy Co., Ltd.

This project will conduct a demonstration of perovskite solar cell (PSC) systems in Thailand. PSCs are lightweight solar cells with excellent flexibility, and the project will integrate them with mounting frames, wiring, power generation monitoring IoT data devices, power conditioners, storage batteries, etc. as a system, depending on the scale of the installation.



Expected GHG Emission Reductions **10,957 tCO2-eq./year**


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District, Bangkok, Thailand

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+66-2-246-4041



添付2 ビジネスマッチング関連資料

2.1 日本工営発表資料

EEC地域における都市間連携事業および JCM制度のご案内

Introduction of the City-to-City Collaboration Program in EEC area and JCM scheme

2025年10月8日

October 8, 2025

日本工営株式会社

日本工営の紹介

Introduction of Nippon Koei

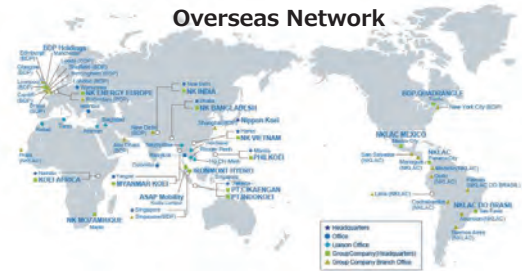
ID&E

- 会社名/Corporate name : ID&Eホールディングス株式会社
Integrated Design & Engineering Holdings Co., Ltd.
- 設立/Established : 2023年7月3日/July 3, 2023
- 資本金/Capital : 7,522 百万円/million yen
- 従業員数/Number of employees : 6,335
- 事業内容/Business areas : グループ会社の事業活動管理・関連業務
Management and related business activities of group companies
- 会社サイト/Web site : <https://www.id-and-e-hd.co.jp/english/>

NIPPON KOEI

- 会社名/Corporate name : 日本工営株式会社
Nippon Koei Co., Ltd.
- 設立/Established : 1946年6月7日/June 7, 1946
- 資本金/Capital : 500 百万円/million yen
- 従業員数/Number of employees : 2,479
- 事業内容/Business areas : コンサルティング事業（国内・海外）
Consulting Business
- 会社サイト/Web site : <https://www.n-koei.co.jp/consulting/english/>

Overseas Network



[Consulting Business]	[Urban Space Business]	[Energy Business]	[Business Management]

EEC地域における都市間連携事業の紹介

Introduction of the City-to-City Collaboration Program in EEC area

■ 都市間連携事業の概要/Outline of the City-to-City Collaboration Program (C3P)



- 都市間連携事業は2013年より開始され、アジアを中心に**13**か国の**56**都市・地域と日本の**20**自治体が参加。
The City-to-City Collaboration Program began in 2013, participating 56 cities/regions in 13 countries, mainly in Asia, and 20 cities/regions in Japan.
- 本事業は都市レベルでの脱炭素化の推進に向け、海外都市と日本の都市が連携することで、**1) 脱炭素を推進する都市における基盤制度の構築支援**および**2) 民間レベルでの脱炭素プロジェクトの形成支援 (JCM案件形成等)**を目指している。
This Program is a scheme to promote decarbonization at the city level through collaboration between overseas and Japanese cities, aiming to 1) design local systems to promote zero-carbon societies and 2) create zero-carbon projects efficiently and effectively at the private sector level (e.g., JCM model projects formulation).



Source: ecojin, Ministry of the Environment, Japan

- 日本工営は2015年より本事業に参加し、令和7年度は**8**件の都市間連携事業を実施中。
Nippon Koei has participated in this Program since 2015, and in FY2025, 8 projects are ongoing.

パタヤ市及びラヨン市における脱炭素社会の実現に向けた共創支援事業

Support for Designing Decarbonization Society in Pattaya City and Rayong City

大阪市とEEC事務局は2019年に**都市間連携事業**を開始、2022年2月に**脱炭素社会形成に関する協力覚書 (MOU)**を締結し、EEC地域における**ネットゼロ推進**に向けて協力している。

Osaka City and EEC started the City-to-City Collaboration Project in 2019, signed MoU in 2022 and agree to cooperate in promoting carbon neutrality in the EEC region.

EEC地域における脱炭素ドミノ展開のため、2025年に大阪市は**パタヤ市、ラヨン市との都市間連携事業**を開始。**1) 観光地や産業集積地における脱炭素化に向けた大阪市の知見・ノウハウの共有、2) パタヤ市、ラヨン市におけるJCM案件形を支援**している。

To further accelerate the domino effect of decarbonization in EEC region, Osaka city has started cooperation with Pattaya City and Rayong City. This involves 1) sharing the City's experience and know-how in decarbonizing tourism and industrial hubs, and 2) supporting the formation of the JCM Projects in Pattaya City and Rayong City.

■ これまでの主な活動/Past activities



Policy Dialogue in Japan



Policy Dialogue in Thailand



JCM Potential Survey



Business Workshop

■ 本年度の主な活動/Main activities for FY2025

1) 都市間連携活動/City-to-City Collaboration Activities

- パタヤ市における観光地の脱炭素化およびラヨン市における産業集積地の脱炭素化に向けた協議・連携
Implementation of studies and collaboration toward decarbonization of tourist sites in Pattaya City and industrial hub in Rayong City

2) JCM案件形成活動/JCM Projects Development Activities

- JCM案件形成及びカーボンプレジット創出支援（木質バイオマス事業、廃棄物発電事業、工業団地への脱炭素インフラ導入事業等）
Support for JCM projects development and carbon credit issuance (wood biomass projects, waste-to-energy projects, decarbonization infrastructure introduction projects for industrial parks, etc.)



Meeting with Rayong City

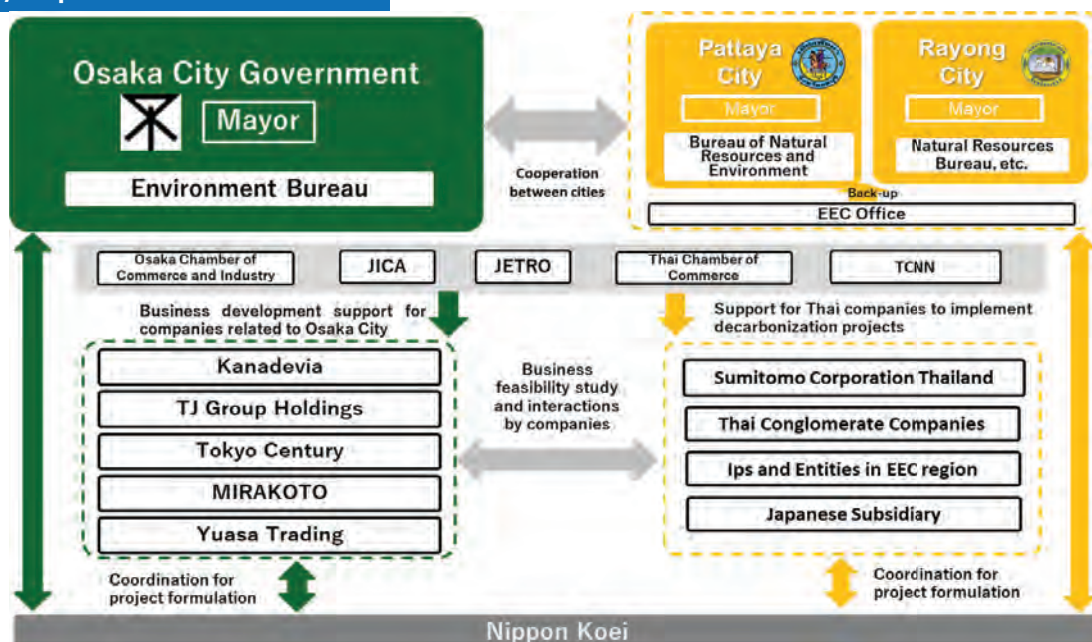


Meeting with Pattaya City



Field Survey

■ 実施体制/Implementation Structure



JCM制度の紹介

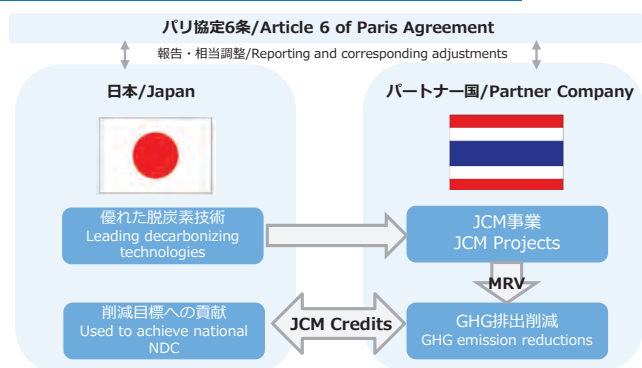
Introduction of JCM Scheme

JCM制度の紹介/Introduction of JCM Scheme

2013年より開始された二国間クレジット制度（JCM）は、パリ協定第6条に基づき実施するもので、パートナー国への優れた脱炭素技術、製品、システム、サービス、インフラ等の普及や対策実施を通じ、パートナー国での温室効果ガス排出削減・吸収や持続可能な発展に貢献し、その貢献分を定量的に評価し、両国の削減目標の達成に貢献する仕組み。

The Joint Crediting Mechanism (JCM), launched in 2013 and implemented under Article 6 of the Paris Agreement, is a mechanism to contribute to the reduction and absorption of GHG emissions and sustainable development in partner countries through the dissemination of superior decarbonization technologies, products, systems, services, and infrastructure in partner countries.

■ JCM概要/Overview of JCM scheme

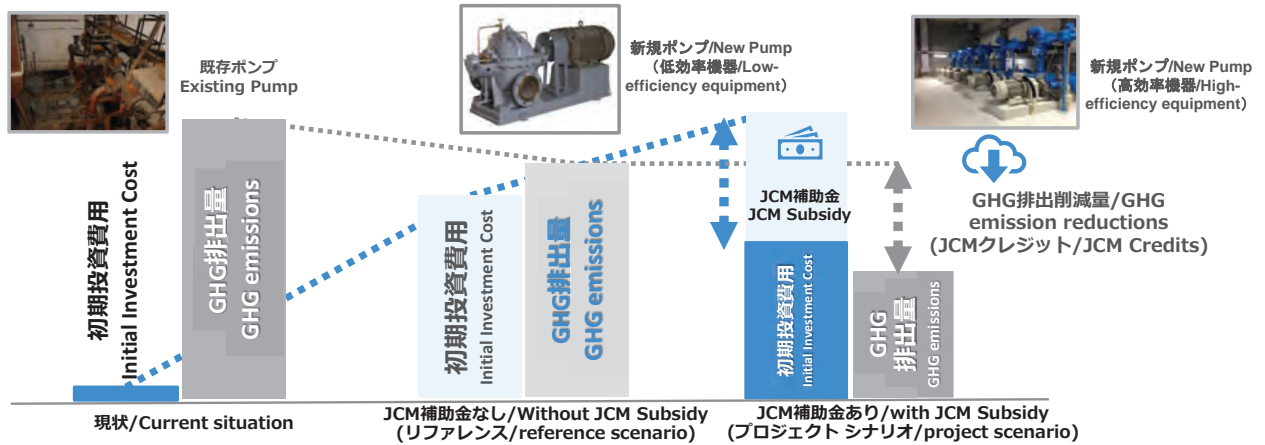


MRV: Measurement, reporting and Verification

- JCMパートナー国/JCM partner companies : **31**
- JCM採択件数/Number of selected JCM : **270**
- 想定GHG削減量/Estimated GHG emission reductions : **3,370,510 t-CO2/year**
- JCM設備補助事業の予算/Budget for JCM Model projects(subsidy) : **約114億円 (3カ年) / approximately 25.8 billion THB (3 years)**
- JCM設備補助事業の公募期間/JCM model projects' application period for FY2025 :
 1. 2025.05.16
 2. 2025.07.25
 3. 2025.09.30

JCM制度の紹介/Introduction of JCM Scheme

JCM設備補助事業では、高効率機器や製品の導入や、再生可能エネルギーシステムの設置を行うことで、初期投資費用に対する補助金が提供される。
The JCM Model Projects provides subsidies for the initial investment costs of installing high-efficiency equipment/products and renewable energy systems etc.



注：JCMスキームでは、上表の条件に加え、費用対効果の数値を評価する。
*In addition to the conditions in the table above, the JCM scheme evaluates cost-effectiveness figures as well.

JCM制度の紹介/Introduction of JCM Scheme

JCM設備補助事業の対象技術/Target Technologies for JCM Model Projects

再生可能エネルギー/Renewable Energy

太陽光/Solar Power

タイでは対象外
not eligible in
Thailand

風力/Wind Power

Max 50%

廃棄物発電/Waste to Energy

バイオガス発電
/Biogas generation

Max 50%

ゴミ焼却発電/Waste to
Energy

Max 40%

URL - <https://www.hisachizosen.co.jp/news/2017/06/002649.html>
URL - https://www.carbon-markets.jp/column/waste_mgmt_bicmass/1603/

同一国での類似案件実績 Number of adoptions of the same technology in the same country	JCM設備補助率 の最大割合 Max rate of JCM subsidy
0件/project	50%
1-3 件/projects	40%
4-7件/projects	30%
8-9件/projects	20%
10件以上/projects or more	対象外 not eligible

省エネルギー技術/Energy-saving

高効率貫流ボイラ
/High-efficiency Once-
through Boiler

Max 40%

高効率ターボ冷凍機
/High Efficiency Chiller

Max 30%

高効率ポンプ
/High Efficiency
Pump

Max 40%

BEMS/空調制御システム
Air-Conditioning Control System

Max 40%



Source: ecojin, Ministry of the Environment, Japan

■ JCM設備補助事業の申請条件/Application requirements for JCM Model Projects

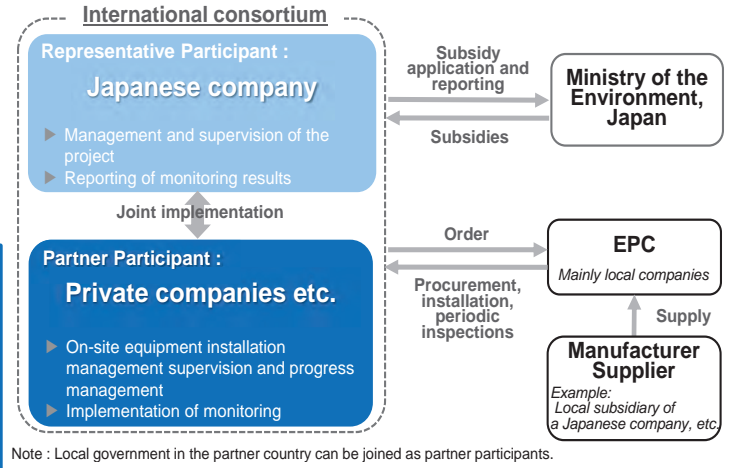
<p>Project Scale Subsidy amount will be Max. 2 billion JPY (= 20 mil. USD) (= 500 mil. THB)</p>	<p>Project Period Project should be commenced within 3 years</p>	<p>GHG reductions GHG emission reduction is expected to be more than 1,000 tCO₂/y</p>
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Cost Effectiveness
Cost effectiveness should be **4,000 JPY/tCO₂ or lower.**

$$\text{Cost effectiveness [JPY/tCO}_2\text{]} = \frac{\text{(Total amount of subsidy [JPY])}}{\text{(Total GHG emission reduction [tCO}_2\text{/y])} \times \text{(Legal durable years), based on Japanese regulation}}$$

Note: In the case of solar power projects, if the number in a partner country is more than 5, its cost-effectiveness is expected to be less than or equal to 3,000 JPY/tCO₂.

■ JCM設備補助事業の申請体制/Application formation for JCM Model Projects



タイにおけるJCMの動向/JCM Trends in Thailand

■ タイにおけるJCMの動向/JCM Trends in Thailand

- タイは2015年にJCM二国間文書に署名し、これまでにJCM事業54件が採択。
Thailand signed the MOU in 2015, and 54 JCM projects have been selected.
- 2024年7月にタイ、日本政府はJCM協力覚書および実施規則を更新。
Thailand and the Japanese government update the JCM Memorandum of Cooperation and Rules of Implementation for JCM in July 2024.
→JCMの手続きはPremium T-VERに統合。
JCM registration procedures are integrated into Premium T-VER.
- 2025年8月にタイ政府は国際カーボンクレジットガイドラインを承認。
The Thai government approves the International Carbon Credit Guidelines in August 2025.
→6条対象プロジェクトを規定。
Projects eligible under Article 6 have been defined to support the transfer of mitigation outcomes.
- 民間JCMでは、民間資金によるJCM事業の実施により、民間企業はJCMクレジットを優先的に取得することが可能。
Implementation of JCM projects with private sector investments enables private companies to obtain JCM credits preferentially.

■ 6条対象事業/Eligible Project Type under Article 6

#	Eligible Project Type under Article 6
1	GHG capture, storage or utilization (CCS, CCU, DAC, etc.)
2	Renewable energy or fossil fuel replacement (green hydrogen, tidal energy, offshore wind energy, geothermal energy, SAF, green ammonia, etc.)
3	Improvement of energy efficiency in buildings, factories or households (high-efficiency electric furnaces, electric boilers, high-efficiency electric motors, etc.)
4	Improvement of efficiency of electricity or heat generation (energy storage, green pallet production from agricultural waste for combined heat and power, etc.)
5	GHG reduction in transport sector (electrification of transportation systems, hydrogen vehicles, PHEVs with a fuel cell, EV or improvement of engine efficiency, etc.)
6	Improvement of production process or management of industrial waste (production of low carbon cement, production of methanol using carbon dioxide or green hydrogen, reduction of the use of fluorinated gases by avoiding use, etc.)
7	Improvement of production process or management of agricultural and livestock waste (soil management, methane reduction of rice cultivation, improvement of animal feeds, improvement of animal breeds, production of advanced bio methanol, etc.)
8	Wastewater or waste management using advanced technology) decomposing of food waste, community's wastewater treatment system, etc.)
9	Emission reduction from forest areas (restoration of degraded forests, sustainable forest management and forestation for carbon sequestration, etc.)
10	Other project types as approved by the National Committee on Climate Change Policy and consistent with national mitigation plan, policy or measures.

添付3 政策対話関連資料

3.1 ECC 発表資料



EEC Opportunities for Prosperity

Eastern Economic Corridor Office of Thailand

Cholachit Vorawangso Virakul, Ph.D.
Assistant Secretary General of EECO

October 2025



EEC At a glance

THE EASTERN ECONOMIC CORRIDOR (EEC) lies at the heart of Thailand's 4.0 development strategy, aimed at restructuring and revitalizing the Thai economy.

COMPLETE STRATEGIC LOCATION

"Creating an Inclusive Environment"

- In 2017, the Royal Thai Government **initiated the Eastern Economic Corridor (EEC)** to be an area-based development initiative aiming to revitalise the well-known Eastern Seaboard of Thailand.
- Covering the development of the 3 Eastern provinces: Rayong, Chonburi, and Chachoengsao.
- Having the objective of
 1. Developing modern and environmentally friendly economic activities
 2. Providing comprehensive government services
 3. Creating efficient infrastructure and public utilities
 4. Determining the appropriate use of land
 5. Developing cities to be modern and suitable for living and doing business



Location: Rayong, Chonburi, and Chachoengsao



Area : 13 Million Hectares (8.3 Million Rai)



Why Invest in the EEC?

LAND

Special Economic Promotional Zone (46+)

LABOUR FORCE

Demand Driven Human Capital Management

LOGISTICS INFRASTRUCTURE & UTILITIES

National Gateway

- 3 international airports (DMK/BKK/UTP)
- Main container port (LCB)
- Main industrial port (MTP)

Area Accessibility

>Road

- Burapha Withi expressway
- Intercity motorway
- Highway network from national to local

>Railway

- Passenger/freight

Utilities

- Water
- Electricity
- Telecom

LAW & REGULATION

Eastern Special Development Zone Act B.E. 2561 (2018)

EECO

Investment promotion mechanism



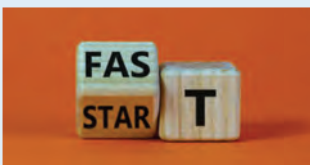
Targeted investment

Industries (5 Clusters)

Area (EEC promotional zones)



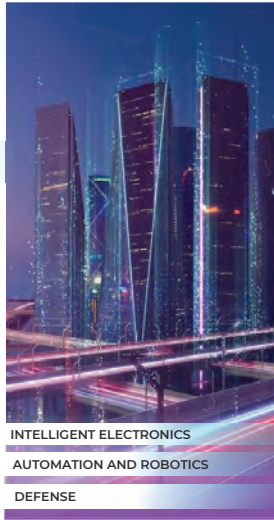
Tailor-made incentives



Total solutions for starting operations

5 Clusters of Special-Targeted Industries

Medical & Health



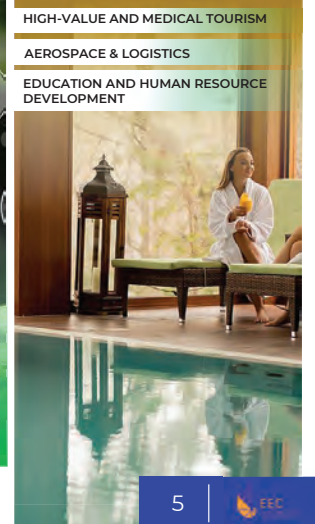
Digital

Next-Generation Automotive



BCG

Services



5









Since 2018-Present (Q2/2025), Japan's investment in EEC value of **THB 277 Billion (USD 8.6 Billion)**



Japan

Total investment value: THB 277 billion* (USD 8.6 Billion)

Total projects: **776**










Medical & Health	Digital	Next-Generation Automotive	Bio-Circular-Green (BCG)	Services	Others
 THB 1,698 mm (JV: THB 1,023 mm)	 THB 36,523 mm (JV: THB 14,767 mm)	 THB 99,567 mm (JV: THB 31,616mm)	 THB 19,286 mm (JV: THB 12,078 mm)	 THB 6,557 mm (JV: THB 4,075 mm)	 THB 113,589 mm (JV: THB 66,116 mm)
9 projects	81 Projects	260 projects	51 Projects	92 projects	283 projects

Source: BOI as of August 2025
* Investment value counted from total project value

6



EEC INVESTMENT INCENTIVES

Condition	Tax & Duties	Business Operation
<p>Operation in one of the EEC Promotional Zones (46 as of September 2025)</p>  <p>Promoted 5 business clusters</p> <ul style="list-style-type: none"> • Medical & Health • Digital • Next-generation automotive • BCG • Services 	 <p>Exemption of CIT (Corporate Income Tax) => Up to 15 years</p> <p>Reduction of CIT (Corporate Income Tax) => Up to 50% for 10 years</p>  <p>Exemption/Reduction of duties</p>  <p>Benefits similar to free zone, bonded warehouse, or free trade zone operators</p>	 <p>EEC Visa + EEC Work permit</p> <p>Waiver of professional license e.g. medical services, engineer</p>  <p>Owning land for business operation</p> <p>Long-term lease of land or real estate 50 years + 49 years</p>  <p>Owning condominium for business operation and residing</p>  <p>Conducting financial transaction in foreign currency</p> <ul style="list-style-type: none"> • Exemption from the laws governing exchange control • Right to use foreign currency for the payment of goods or services  <p>Licensing & Permit under 14 Acts of Parliament from the EECO</p>

EEC Capital City (EECiti)



Location :	Bang Lamung District, Chonburi Province, Thailand
Area :	≈ 15,000 rai (24 km ²)
Distance :	≈ 15 km. from U-Tapao airport
Key Locations	≈ 10 km. from Pattaya - Jomtien ≈ 160 km. from Bangkok
Development : Duration	2022-2032 (1 year for the project's preparation & 10 years for development)
Population :	350,000 people
Job Creation :	200,000 positions
Development Cost :	≈ 1.34 trillion THB (≈ 40 billion USD) Public/ Private/ PPP Investment
Land Use Ratio :	Commercial & Residential Areas ≈ 70% Green Area ≈ 30%



EEC
Capital
City

Vision

“Becoming a Center of Regional Businesses & Financial Services”

Prime area for business center and livable smart city where nature, people, and technology come together. Moving toward BCG economy. A Top 10 Livable Smart City in the world.

EECiti: (Draft) Zoning Plan

EECiti will offer the ultimate "LIVE, WORK, PLAY" environment



EECiti: Total Area 14,990 Rai (~ 5,925 Acres)

(EECO 14,619 Rai + Sports Authority of Thailand (SAT) 371 Rai)

Zone	Area (Rai)	Percentage
Green and water area	2,570 (1,016 Acres)	17 + (13) %
Infrastructure and utilities (Included green area 13%)	2,250 (889 Acres)	15 %
Land development area (Leasable area)	10,170 (4,020 Acres)	68 %
Zone 1 – RHQ / Govt. Complex/ Future Finance Hub (CBD)	500 (198 Acres)	3.3 %
Zone 2 – Precision Medicine & Healthcare Hub	575 (227 Acres)	3.9 %
Zone 3 – Education Hub – R&D	1,120 (443 Acres)	7.5 %
Zone 4 – Tourism & Entertainment	2,350 (929 Acres) (SAT 1,500 Rai/ EECO 850)	15.7 %
Zone 5 – BCG	3,225 (1,274 Acres) (IEAT 1,614 Rai/ EECO 1,611)	21.6 %
Zone 6 – Residential & Commercial/Mixed-use	2,400 (949 Acres)	16 %



1) Central Infrastructure and Utilities in 10 Systems as Single Package

Goal: Net Zero City

- 
1. Electricity and Energy System
 (Green Energy and High Efficiency)
 Electrical grid based on self-sufficiency and clean energy
- 
2. Water Supply System
 (Intelligent and Optimized Water treatment System)
- 
3. Wastewater Collection and Treatment, and Recycled Water Production System
 (Intelligent and Optimized Water treatment System)
 Based on the concept of maximizing resource circulation and reuse
- 
4. Water Management System
 (Water Sensitive Urban Design)
 Drainage and flood protection systems
- 
5. Sustainable Waste Management System
- 
6. Digital Infrastructure and Telecommunication System
- 
7. Fire Protection System, Disaster Warning System and Lightning Protection System
- 
8. Road Network and Other Necessary Transportation Facilities
- 
9. Common Utility Duct
- 
10. Green Space and Landscape Works for Public Area

EECiti: Development Plan

* Data as of Sep 2025



Decarbonization Activities in EEC : EEC

1) Decarbonization Solution for Industries

- **Estimating carbon reduction capacity** in industry supply chains (focusing on Scope 3)
- **Policy development for promoting decarbonization** in industry supply chains
- **Key industry**
 - Energy
 - Petrochemical
 - Biochemical



2) Re-skill & Up-skill for decarbonization

- **Human capacity building** for decarbonization for industrial sector in EEC
- **Supporting technology development** for green transformation in industrial sector
- **Developing the dataset** for carbon management
- More than **334 companies** in EEC participating in this program



Decarbonization Activities in EEC : Pattaya

Pattaya Go Green

- Objective: 1. Developing Pattaya into a low carbon tourism destination
2. Promoting international standard in tourism
3. Promoting sustainable development within local communities

Example of key activities under “Pattaya Go Green”

1) Green Logistic



- Thailand's first hydrogen refueling station for Fuel Cell Electric Vehicles (FCEVs) in Bang Lamung District, Chonburi Province
- Two more stations expected to expand in industrial estate area



- FCEV demonstration for eco-tourism at Pattaya – industrial estates in EEC – U-Tapao international airport

2) Global Sustainable Tourism



Global Sustainable Tourism Criteria for De (GSTC : for Destinations)

Nominating “Na Klua ”area for the Top 100 *Green Destinations* as one of the world's leading sustainable tourism destinations.

ISO 13009 : 2015 Beach Operation Type N

Nominating Pattaya's beach area for the Top 100 Quality Coast Awards, recognizing the world's best beaches.

Decarbonization Activities in EEC : Rayong

Framework for Cooperation : Rayong City Municipality and Osaka City

1

Smart and Green City

Sharing experiences and exemplary practices in smart and green city development between Rayong City and Osaka City.

2

Circular Economy

Promotion of circular economy technologies such as biomass and waste-to-energy conversion.

3

Environment Education

Promoting collaboration in environmental education through curriculum exchange and student-driven carbon credit assessments within municipal schools.

4

Decarbonization Targets and Policies Formulation

Sharing strategies for establishing greenhouse gas reduction targets and developing effective municipal policies to support decarbonization.

The next step of the collaboration Osaka City & EECO

Current

Future

1. Policy Development

- Knowledge sharing on decarbonization policy (Policy Dialogue)
- Expanding network to local government in EEC (Pattaya City, Rayong Municipality) and relevant organizations (TGO, NSTDA)

- Creating a know-how transfer project for Thai local government
- Expanding the network to potential local partners

- Conducting business seminar and introducing JCM scheme
- Expanding the network with Thai companies and exploring technology collaboration

- Matching Thai and Japanese companies for decarbonization pilot projects
- Supporting Japanese investment expansion in ASEAN (Team Osaka Network)

2. Green Investment Promotion

15



CONTACT EEC

We Make EEC Easy

EEC's dedicated team will guide you towards successful development of investment projects. Our team can advise, accompany, and assist you throughout the journey.

The Eastern Economic Corridor Office of Thailand (EECO) is the public agency established to promote investment, uplift innovation, and advanced technology in Thailand for the future generation. We are your facilitator to add the value across the entire project and coordinate closely and proactively with the entire supply chain to ensure the success of your investment.

How to get in touch

We welcome any inquiries. Please feel free to contact us at

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EEC Factsheet



EEC Website

